




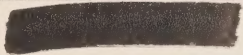
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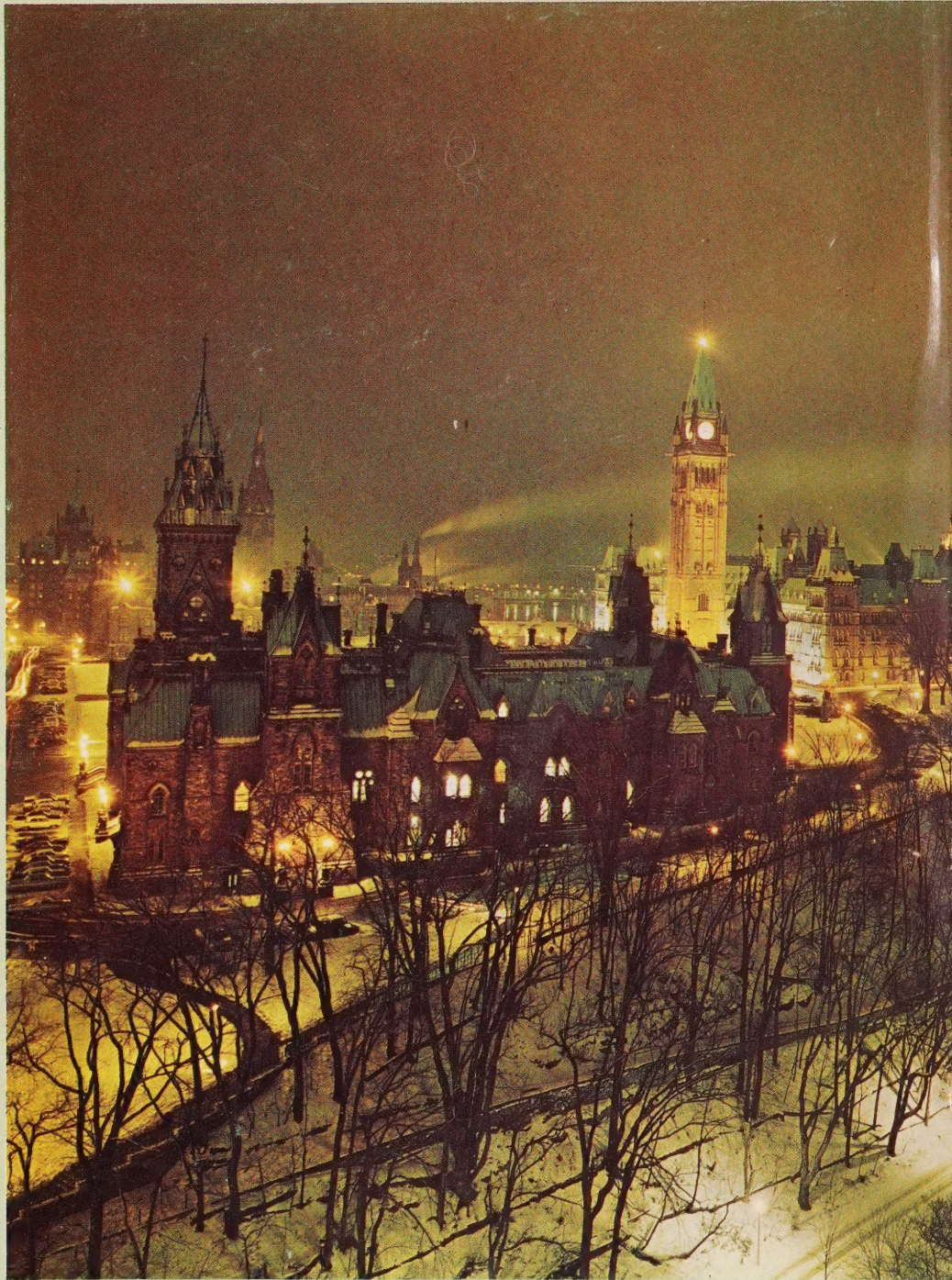


		
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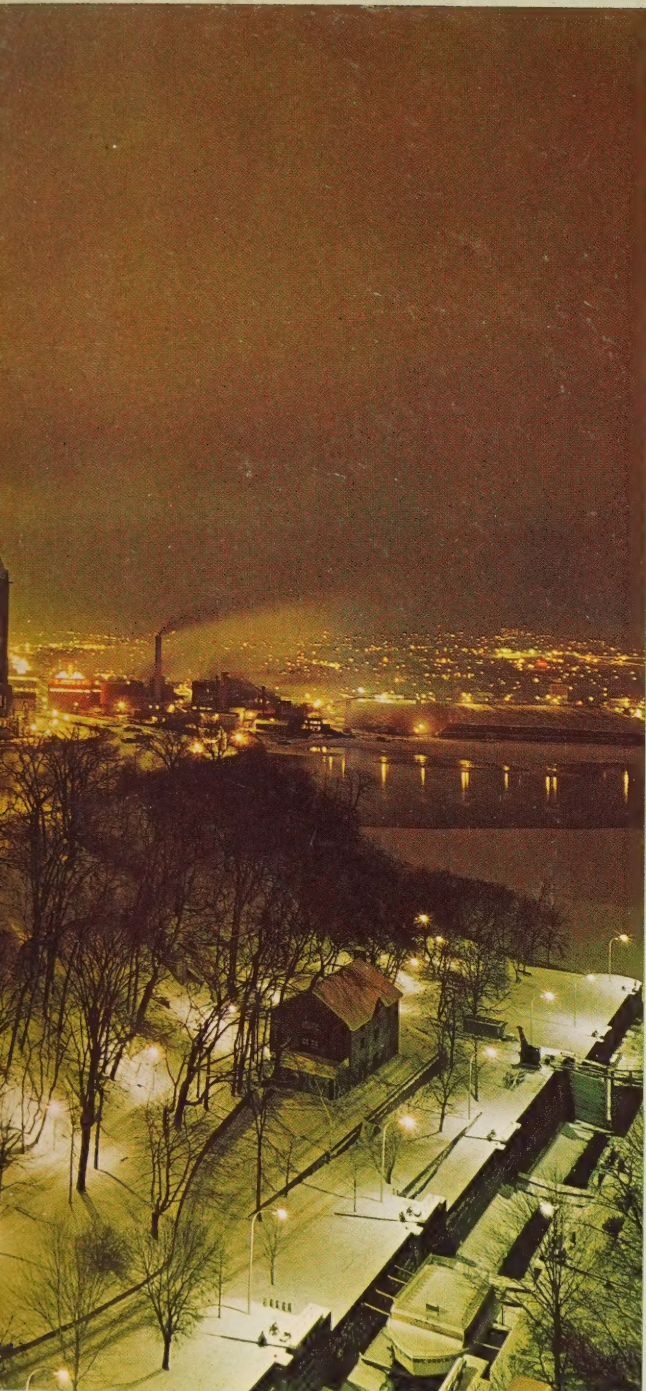


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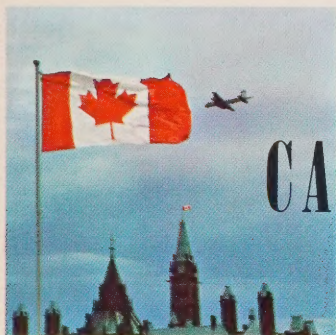


Malak, Ottawa



The Hill —

under whose towered crown has unfolded the panorama of Canada's political history and from whose halls have emanated the national laws under which have lived and laboured a free, diverse and united people. The Hill spans the years, through the struggle of beginnings in a vast and challenging land to the present excitement of a changing, growing, developing nation. The small stone building nestling at its side, standing as it stood in 1827 when it was erected as a workshop for the builders of the Rideau locks and canal, is a reminder of those who turned a great untouched domain into the flourishing Canada of today.



CANADA YEAR BOOK 1966

OFFICIAL STATISTICAL ANNUAL OF THE
RESOURCES, HISTORY, INSTITUTIONS AND SOCIAL
AND ECONOMIC CONDITIONS OF CANADA

Published by Authority of

THE HONOURABLE ROBERT H. WINTERS

Minister of Trade and Commerce

DOMINION BUREAU OF STATISTICS

CANADA YEAR BOOK, HANDBOOK
AND LIBRARY DIVISION

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1966

PREFACE

The 1966 edition of the Canada Year Book continues a series of annual publications giving official statistical and other information on almost every measurable phase of Canada's development. As the economy of the country has expanded, the Dominion Bureau of Statistics has endeavoured to present the story of this development, summarizing a great mass of detailed statistical, legislative and other pertinent information concisely within the covers of one volume and supplementing it with data from other Departments of the Federal Government and from the provinces.

Each chapter contains the latest information procurable at the time of printing, the emphasis changing with progress and developments in the field covered and new data added as they become available. The current edition contains a special article on "The Flora of Canada" (pp. 35-61), a subject last covered in the 1938 edition. Also included is specially prepared material on "Mobility of Canada's Population, 1956-1961" (pp. 179-187) and on "Contribution of the Canada Department of Agriculture to Modern Agricultural Science" (pp. 457-461). The chapter on Trends in Economic Aggregates is extended to include, for the first time, a Section on Productivity and a detailed write-up on the program and activities of the Economic Council of Canada and the Atlantic Development Board.

Because of changes in the designations of several Federal Government Departments and a considerable re-arrangement of duties among them, announced shortly before going to press but not yet implemented, it was considered advisable to omit from this edition the Directory of Sources of Official Information usually appearing in Chapter XXVII. For the same reason, the chart showing the organization of the Government of Canada is not inserted in Chapter II. This chart will be prepared as soon as the departmental re-organization is completed and, if available before distribution of this volume, will be placed in the envelope inside the back cover. If not, copies may be secured on request from the Dominion Bureau of Statistics. As in previous editions, the back cover pocket will contain a 140-mile-to-the-inch political map of Canada.

The present volume was produced in the Canada Year Book, Handbook and Library Division by Miss Margaret Pink, Associate Editor, and the Year Book staff under the editorship and direction of Dr. C. C. Lingard, Director of the Division. The charts and maps, except where otherwise indicated, were prepared by L. Tessier of the Drafting Unit.

The co-operation of numerous officials of the various Departments of the Federal and Provincial Governments and of this Bureau in the preparation of material for the Year Book is gratefully acknowledged. Credit by means of footnotes is given where possible, either to the persons or to the public service concerned.

Walter E. Suffert.

DOMINION STATISTICIAN

DOMINION BUREAU OF STATISTICS,
Ottawa, Jan. 31, 1966.

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WEIGHTS AND MEASURES AND OTHER INTERPRETATIVE DATA

In Canada as a rule the Imperial system of weights and measures is followed; an exception is the ton where, unless otherwise stated, the short ton of 2,000 lb. is meant.

Relative Weights and Measures, Imperial and United States

The following list of coefficients may be used to translate amounts expressed in one unit to the other. Where reference is made to Imperial pint, quart and gallon, their equivalent in ounces is also in Imperial measure: likewise United States designations for these quantities are shown in the U.S. equivalent in ounces. The Imperial (or British) fluid ounce and the U.S. fluid ounce are different measures. One Imperial fluid ounce equals 0.96 U.S. fluid ounce and one Imperial gallon equals 1.2 U.S. gallons.

1 Imperial pint=20 fluid ounces	1 short ton=2,000 pounds
1 U.S. pint=16 fluid ounces	1 long ton=2,240 pounds
1 Imperial quart=40 fluid ounces	1 barrel crude petroleum=35 Imperial gallons
1 U.S. quart=32 fluid ounces	1 ounce avoirdupois=0.91146 ounce troy (oz.t.)
1 Imperial gallon=160 fluid ounces	1 statute mile=5,280 feet
1 U.S. gallon=128 fluid ounces	1 nautical mile=6,080 feet
1 Imperial proof gallon=1.36 U.S. proof gallon	

The following weights and measures are used in connection with the principal field crops and fruit; 2.3 bu. of wheat are required to produce 100 lb. of flour.

	<i>Pounds per Bushel</i>		<i>Pounds per Bushel</i>
Grains—		Fruits (standard conversions)—	
Wheat.....	60	Apples.....	45
Oats.....	34	Pears, plums, cherries, peaches, grapes and apricots.....	50
Barley and buckwheat.....	48	Strawberries and raspberries....(per qt.)	1.25
Rye, flaxseed and corn.....	56		
Rapeseed and mixed grains.....	50		
All others.....	60		

Fiscal Years of Federal and Provincial Governments

The fiscal year of the Federal Government and of each of the ten Provincial Governments ends on March 31. Throughout the Year Book, all figures are for calendar years except where otherwise indicated in text or table headings.

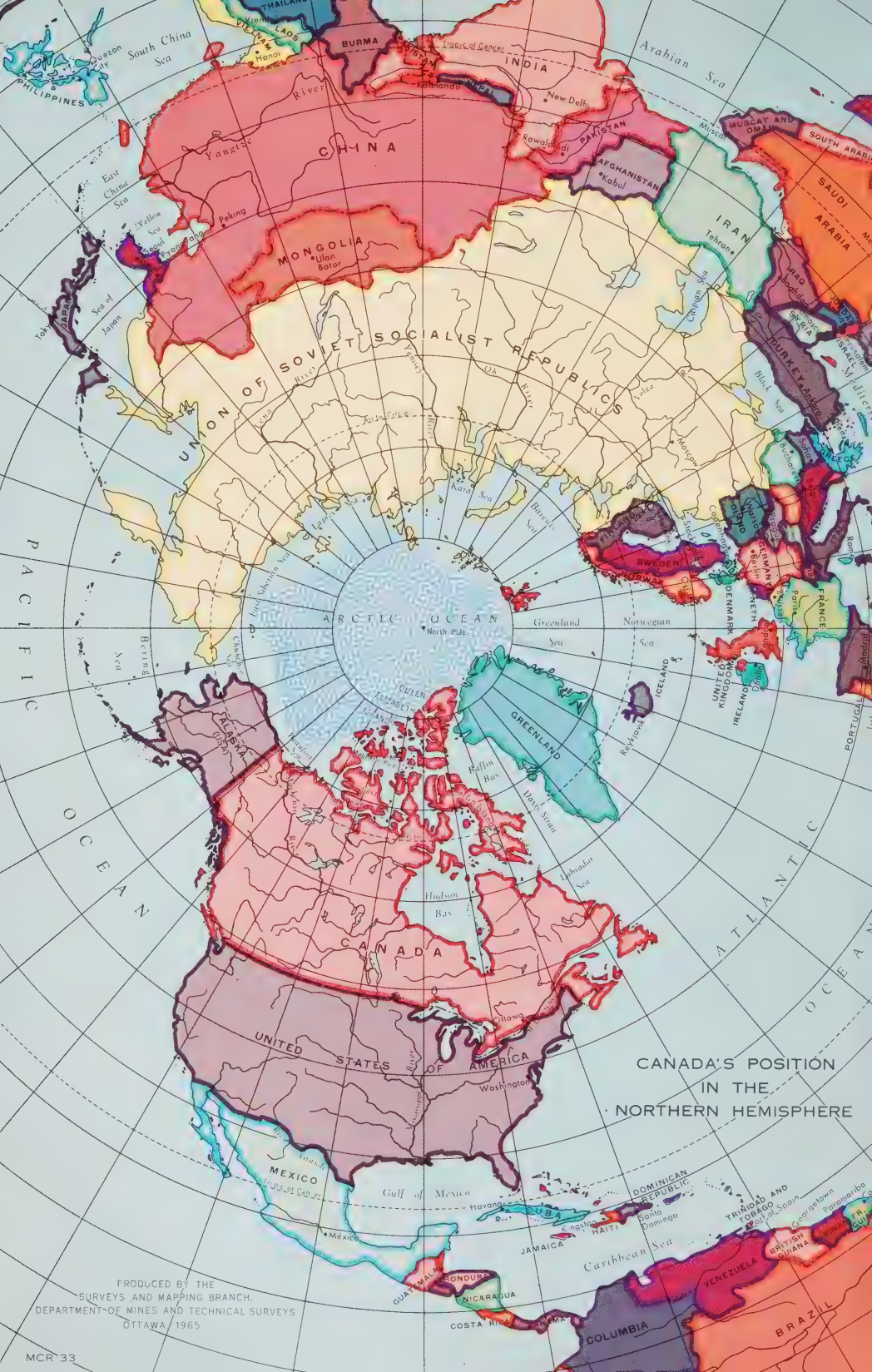
Miscellaneous

Maritime Provinces=Prince Edward Island, Nova Scotia and New Brunswick
 Atlantic Provinces=Newfoundland, Prince Edward Island, Nova Scotia and New Brunswick
 Central Canada=Quebec and Ontario
 Prairie Provinces=Manitoba, Saskatchewan and Alberta
 Btu.=British thermal unit (coal)
 Mcf.=thousand cubic feet (gas)
 n.e.s.=not elsewhere specified
 n.o.p.=not otherwise provided for
 psi. (atomic research)=pounds-force per square inch (pressure)
 D.B.H. (forestry)=diameter at breast height.

SYMBOLS

The interpretation of the symbols used in the tables throughout this publication is as follows:—

- . . figures not available.
- ... figures not appropriate or not applicable.
- nil or zero.
- - amount too small to be expressed or where “a trace” is meant.
- ° preliminary figures.
- ° revised figures.



CANADA'S POSITION
IN THE
NORTHERN HEMISPHERE

PRODUCED BY THE
SURVEYS AND MAPPING BRANCH,
DEPARTMENT OF MINES AND TECHNICAL SURVEYS
OTTAWA 1965

CHAPTER I.—PHYSIOGRAPHY AND RELATED SCIENCES

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii.

PART I.—GEOGRAPHY AND GEOLOGY*

Canada occupies the northern half of the North American Continent with the exception of Alaska and Greenland, extending in longitude from Cape Spear, Newfoundland, at 52° 37' W, to Mount St. Elias, Yukon Territory, at 141° W, a distance of 88° 23' or 3,223 miles. In latitude it stretches from Middle Island in Lake Erie, at 41° 41' N, to the North Pole. The northernmost point of land is Cape Columbia on Ellesmere Island, at 83° 07' N, and the straight-line distance from Middle Island to Cape Columbia is 2,875 miles.

In shape, Canada resembles a distorted parallelogram with its four corners making important salients. In the north the salient formed by the Arctic Archipelago, which penetrates deep into the Arctic basin, guards the northern approaches to the Continent from Europe and Asia and makes Canada neighbour to the Union of Soviet Socialist Republics. In the south the salient of peninsular Ontario thrusts far into the heart of the United States. In the east the salient of Labrador and the Island of Newfoundland commands the shortest crossings of the North Atlantic Ocean and links Canada geographically with Britain and France. In the west the broad arc of land between Vancouver in southern British Columbia and Whitehorse in Yukon Territory provides the shortest crossings of the North Pacific Ocean between continental North America and the Far East. Canada thus lies at the crossroads of contact with the principal powers and some of the most populous areas of the world.

*Revised by the Geographical Branch, Department of Mines and Technical Surveys, Ottawa.

1.—Approximate Land and Freshwater Areas, by Province or Territory

NOTE.—A classification of land areas as agricultural, forested, etc., is given in Chapter X on Land Use and Renewable Resource Development.

Province or Territory	Land	Freshwater	Total	Percentage of Total Area
	sq. miles	sq. miles	sq. miles	
Newfoundland.....	143,045	13,140	156,185	4.1
Island of Newfoundland.....	41,164	2,195	43,359	1.1
Labrador.....	101,881	10,945	112,826	3.0
Prince Edward Island.....	2,184	—	2,184	0.1
Nova Scotia.....	20,402	1,023	21,425	0.6
New Brunswick.....	27,835	519	28,354	0.7
Quebec.....	523,860	71,000	594,860	15.4
Ontario.....	344,092	68,490	412,582	10.7
Manitoba.....	211,775	39,225	251,000	6.5
Saskatchewan.....	220,182	31,518	251,700	6.5
Alberta.....	248,800	6,485	255,285	6.6
British Columbia.....	359,279	6,976	366,255	9.5
Yukon Territory.....	205,346	1,730	207,076	5.4
Northwest Territories.....	1,253,438	51,465	1,304,903	33.9
Franklin.....	541,753	7,500	549,253	14.3
Keewatin.....	218,460	9,700	228,160	5.9
Mackenzie.....	493,225	34,265	527,490	13.7
Canada.....	3,560,233	291,571	3,851,809	100.0

In size, Canada is the largest country in the Western Hemisphere and the second largest country in the world. Its area of 3,851,809 sq. miles may be compared with that of the Union of Soviet Socialist Republics, 8,649,512 sq. miles,* the United States of America (including Alaska and Hawaii), 3,615,214 sq. miles,* and Brazil, 3,286,478 sq. miles.* It is more than forty times the size of Britain and eighteen times that of France. The immense size of the country, while encompassing many resources and seeming to afford much scope for settlement, imposes its own burdens and limitations, particularly because much of the land is mountainous and rocky or is under an arctic climate. The developed portion is probably not more than one third of the total; the occupied farm land is less than 8 p.c. and the currently accessible productive forest land 19 p.c. of the total. The population of Canada, estimated at 19,571,000 as at June 1, 1965, may be compared with 189,375,000† for the United States (including Alaska and Hawaii) (1963) and with 76,409,000† for Brazil (1963).

The milages in Table 2 are another indication of the size of Canada. They show the length of communication facilities required between the larger cities, between outlying industrial communities built up around large mining or smelting projects and the nearest cities, and between northern outposts and the supplying cities. In this table mileage given is for the major means of transport used between the points concerned; air milages are given for most transcontinental distances.

The length of Canada's southern border adjoining the United States is 3,986.8 miles and the length of the Yukon-British Columbia border adjoining Alaska is 1,539.8 miles.

* *United Nations Statistical Yearbook, 1963.*

† *United Nations Population and Vital Statistics Report, Apr. 1, 1965.*

2. Travel Distances between Certain Cities and Other Points of Interest in Canada

NOTE.—The dash used in this table indicates that the distance concerned is of no particular interest. In each case the mileage given is for the type of travel most generally used—road (H), rail (R), air (A) or water (W); air mileages are given for most transcontinental distances. Water routes are given in nautical miles.

From	To	Halifax	Montreal	Quebec	Ottawa	Toronto	Winnipeg	Edmon- ton	Van- couver
		miles	miles	miles	miles	miles	miles	miles	miles
St. John's, Nfld.		w 531	w 1,043	w 904	—	w 1,336	—	—	A 3,955
Charlottetown, P.E.I.		H 165	—	—	—	—	—	—	—
Halifax, N.S.		—	H 860	H 759	—	H 1,210	—	—	A 3,232
Fredericton, N.B.		H 329	H 531	H 366	—	—	—	—	—
Saint John, N.B.		H 296	H 624	H 459	H 748	H 974	—	—	—
Chibougamau, Que.		—	—	R 608	—	—	—	—	—
Montreal, Que.		R 840	—	H 165	H 124	H 350	A 1,419	A 2,225	A 2,668
Quebec, Que.		—	H 165	—	H 289	H 515	A 1,436	—	A 2,814
Schefferville, Que.		—	R 357	R 357	—	—	—	—	—
Sept Îles, Que.		—	+	+	—	—	—	—	—
Fort William, Ont.		—	w 430	w 291	—	—	—	—	—
Hamilton, Ont.		—	w 1,055	w 1,194	R 878	w 762	R 419	R 1,219	R 1,892
Ottawa, Ont.		—	H 394	H 559	H 303	H 44	—	—	—
Sudbury, Ont.		—	H 124	H 289	—	H 259	A 1,325	A 2,131	A 2,574
Toronto, Ont.		w 1,188 ¹	H 350	H 515	H 313	H 234	R 945	A 1,748	A 2,360
Churchill, Man.		—	—	—	—	—	R 957	A 1,748	A 2,360
Lynn Lake, Man.		—	—	—	—	—	R 992	—	—
Winnipeg, Man.		—	—	—	—	—	R 723	—	—
Regina, Sask.		—	R 1,764	—	R 1,653	R 1,587	—	R 800	R 1,473
Saskatoon, Sask.		—	—	—	—	—	R 356	R 512	R 1,117
Uranium City, Sask.		—	—	—	—	—	R 470	R 330	R 1,095
Calgary, Alta.		—	—	—	—	—	A 456	A 992	A 992
Edmonton, Alta.		—	R 2,159	—	R 2,041	R 2,007	R 832	R 194	R 641
Fort St. John, B.C.		—	—	—	—	—	—	A 371	R 765
Kitimat, B.C.		—	—	—	—	—	—	—	R 728
Prince Rupert, B.C.		—	—	—	—	—	—	R 956	w 420
Vancouver, B.C.		A 3,232	A 2,668	R 3,042	R 2,770	A 2,360	A 1,403	R 765	w 477
Victoria, B.C.		A 3,279	—	—	—	—	—	—	—
Dawson, Y.T.		—	—	—	—	—	A 1,058	A 316	A 615
Whitehorse, Y.T.		—	—	—	—	—	—	H 1,287	A 1,056
Frobisher, N.W.T.		—	A 1,297	—	—	—	—	A 3,522	A 3,965
Inuvik, N.W.T.		—	A 3,543	—	—	—	A 2,140	A 1,318	A 1,854
Yellowknife, N.W.T.		—	—	—	—	—	A 1,398	A 656	A 1,192

¹ Via Strait of Canso.

Section 1.—Physical Geography

Subsection 1.—Main Physical and Economic Features of the Provinces and Territories

Politically, Canada is divided into ten provinces and two territories. Each province is sovereign in its own sphere and administers its own natural resources, and upon such resources, as related to topography, position and climate, is based the economy of the province. The resources of the Yukon and Northwest Territories, because of the remoteness, the great extent and the meagre and scattered populations of these areas, are administered by the Federal Government.

The main physical and economic characteristics of each province and territory are described in some detail in the 1963-64 Year Book; this article is available in reprint form. Also, it should be mentioned that the economic development of the country as a whole, based in the first instance on physical features and later on other factors, has formed regions quite distinct from the political divisions. These economic regions are described in an article appearing in the 1962 Year Book at pp. 17-23.

All geographical data on Canada that might be of use in promoting the country's economic, commercial and social welfare are available from the Geographical Branch of the Department of Mines and Technical Surveys. The work of this Branch includes the compiling of geographical material of national significance and the conducting of geographical

surveys in the field. Land surface conditions, land use, types of vegetation and the structure of towns and cities are typical subjects of investigation. The Canadian Permanent Committee on Geographical Names, administered by the Branch, deals with all questions of geographical nomenclature affecting Canada and undertakes research and investigation into the origin and usage of geographical names. The Committee is composed of representatives of the federal mapping agencies and other federal agencies concerned with nomenclature and a representative appointed by each province.

Subsection 2.—Inland Waters

The inland waters of Canada (not including saltwater areas that are a part of Canada) are extensive, constituting about 7.6 p.c. of the total area of the country. Aside from their basic essentiality to the support of life, Canada's fast-flowing rivers and chains of lakes have had a great bearing on the development of the country and on its economic and social well-being. In the early days of exploration and settlement, they were the avenues of transportation and often the source of subsistence. These functions have now diminished in importance; with the exception of the St. Lawrence and certain water routes in the interior and the Far North, the rivers and lakes have assumed other roles in the domestic, industrial, agricultural and recreational life of the people. They still serve as efficient carriers of pulpwood from the forests to the mills and their waters are harnessed to provide power for industry or are dammed and diverted to irrigate and bring life to otherwise waste land.

The inland waters of Canada are best studied by segregating the main drainage basins. The Atlantic drainage basin is the most important, being dominated by the Great Lakes-St. Lawrence system which drains an area of approximately 678,000 sq. miles and



forms an unequalled navigable inland waterway through a region rich in natural and industrial resources. From Duluth, Minn., at the head of Lake Superior to Belle Isle at the entrance to the Gulf of St. Lawrence the distance is 2,280 miles. The entire drainage area to the north of the St. Lawrence and the Great Lakes is occupied by the southern fringe of the Canadian Shield—a rugged, rocky, plateau region over the edge of which tumble many swift-flowing tributary rivers. These rivers, as well as the St. Lawrence itself, provide the electric power necessary to operate the great industries of the area. South of the St. Lawrence, the smaller rivers are important locally. The St. John, for instance, drains a fertile area and provides most of New Brunswick's hydro power.

The Hudson Bay drainage basin, although the largest in area, is the least important economically. Only the Nelson and Churchill Rivers have power potential within economical distance of settled areas. The two main branches of the Saskatchewan River, tributary to the Nelson, drain one of Canada's great agricultural regions and are now the bases of important irrigation projects.

The Arctic drainage basin is dominated by the Mackenzie, one of the world's longest rivers, which flows 2,635 miles from the head of the Finlay River to the Arctic Ocean and drains an area in the three westernmost provinces of approximately 700,000 sq. miles. Except for a 16-mile portage in Alberta, it is possible for steamboats to navigate from the end of steel at Waterways on the Athabasca River to the mouth of the Mackenzie, a distance of 1,700 miles.

The rivers of the Pacific basin rise in the mountains of the Cordilleran Region and flow to the Pacific Ocean over tortuous, precipitous courses, rushing through steep canyons and tumbling over innumerable falls and rapids. They provide power for large hydro developments and in season swarm with salmon returning inland to their spawning grounds. The major rivers of the basin are the Fraser which rises in the Rocky Mountains and toward its mouth flows through a rich agricultural area, the Columbia which is an international river with a total fall of 2,650 feet during its course and has thus a tremendous power potential, and the Yukon River which is also an international river but, though the largest on the Pacific slope, is at present relatively unimportant economically.

Table 3 lists the principal rivers of Canada and their tributaries. The tributaries and sub-tributaries are indicated by indentation of names; thus the Ottawa and other rivers are shown as tributary to the St. Lawrence, and the Gatineau and other rivers as tributary to the Ottawa.

3.—Lengths of Principal Rivers and Their Tributaries

Drainage Basin and River	Length	Drainage Basin and River	Length
	miles		miles
Flowing into the Atlantic Ocean		Flowing into the Atlantic Ocean—continued	
St. Lawrence (to head of St. Louis, Minn.).....	1,900	Richelieu.....	210
Ottawa.....	696	St. Francis.....	165
Gatineau.....	240	Chaudière.....	120
du Lièvre.....	205	Via the Great Lakes—	
Coulonge.....	135	French (to head of Sturgeon).....	180
Madawaska.....	130	Sturgeon.....	110
Rouge.....	115	Grand.....	165
Mississippi.....	105	Thames.....	163
Petawawa.....	95	Spanish.....	153
South Nation.....	90	Trent.....	150
Dumoine.....	80	Mississagi.....	140
North.....	70	Nipigon (to head of Ombabika).....	130
North Nation.....	60	Moir.....	60
Saguenay (to head of Peribonca).....	475	Thessalon.....	40
Peribonca.....	280	St. John.....	418
Mistassini.....	185	Romaine.....	270
Ashuanipuchuan.....	165	Natashquan.....	241
St. Maurice.....	325	Moisie.....	210
Mattavin.....	100	Hamilton.....	208
Manicouagan (to head of Racine de Bouleau).....	310	Exploits.....	153
Outardes.....	270	Naskaupi.....	152
Bersimis.....	240	Canairiktok.....	139

4.—Elevations, Areas and Depths of the Great Lakes

Lake	Elevation Above Sea Level	Length	Breadth	Maximum Depth	Total Area	Area on Canadian Side of Boundary
	ft.	miles	miles	ft.	sq. miles	sq. miles
Superior.....	602.23	383	160	1,302	32,483	11,524
Michigan (U.S.A.).....	580.77	321	118	923	22,400	—
Huron.....	580.77	247	101	750	23,860	15,353
St. Clair.....	575.30	26	24	23	432	270
Erie.....	572.40	241	57	210	9,889	4,912
Ontario.....	245.88	193	53	774	7,313	3,849

5.—Elevations and Areas of Principal Lakes, by Province

NOTE.—Areas given are for mean water levels. For those reservoirs and lakes for which two elevations are given, HW means high water and LW low water.

Province and Lake	Elevation	Area	Province and Lake	Elevation	Area
	ft.	sq. miles		ft.	sq. miles
Newfoundland—			Quebec—concluded		
Deer.....	12	24	Timiskaming (total, 121) part.. { HW 589		66
Gander.....	86	40	Two Mountains.....	LW 575	63
Grand.....	270	205	Waswanipi.....	73	75
Melville.....	sea level	1,133		830	
Michikamau.....	1,650	566			
Red Indian.....	500	70	Ontario—		
Victoria.....	700	15	Abitibi (total, 369) part.....	868	313
Nova Scotia—			Dog.....	1,380	61
Bras d'Or.....	tidal	360	Eagle.....	1,192	140
New Brunswick—			Erie (total, 9,889) part.....	572	4,912
Grand.....	tidal	65	Huron, including Georgian Bay		
Quebec—			(total, 23,860) part.....	580	15,353
Abitibi (total, 369) part.....	868	56	Kesagami.....		90
Albanel.....	1,289	172	La Croix (total, 55) part.....	1,186	25
Baskatong (reservoir).....	HW 732	109	Long.....	1,025	75
Bienville.....	LW 677	392	Manitou, Kenora.....	1,215	60
Burnt (Brûlé).....	1,400	56	Mille Lacs, Lac des.....	1,496	103
Cabonga (reservoir).....	1,590	66	Minnitaki.....	1,177	72
Champlain (total, 360) part.....	HW 1,185	18	Nipigon.....	852	1,870
Chibougamau.....	LW 1,169	88	Nipissing.....	614	350
Clearwater.....	790	535	Ontario (total, 7,313) part.....	245	3,849
d'Iberville.....	790	260	Rainy (total, 360) part (reser-	HW 1,108	291
Evans.....	760	180	voir).....	LW 1,103	71
Goéland.....	810	125	Red.....	1,157	270
Indian House.....	890	125	St. Clair (total, 432) part.....	574	
Kaniapiskau.....	1,850	210	St. Francis, River St. Lawrence		
Kempt.....	1,372	75	(total, 88) part.....	154	25
Kipawa.....	884	125	St. Joseph.....	1,218	187
Lower Seal.....	860	130	Sandy.....	906	270
Manicouagan.....	645	110	Seul (reservoir).....	1,170	539
Manouane.....	1,340	100	Simcoe.....	718	283
Maricourt.....		110	Stout (Berens River).....	1,039	50
Mattagami.....	765	88	Sturgeon (English River).....	1,342	110
Minto.....	450	485	Superior (total, 32,483) part.....	602	11,524
Mistassini.....	1,220	840	Timagami.....	965	91
Nichikun.....	1,737	150	Timiskaming (total, 121) part.. { HW 589		55
Olga.....	785	50	Trout (English River).....	LW 575	
Payne.....	436	230	Trout (Severn River).....	1,294	156
Pipmuacan (reservoir).....	HW 1,305	90	Woods, Lake of the (total, 1,695)	770	264
Pletipi.....	LW 1,275	138	part (reservoir).....	1,060	953
Quinze, des.....	HW 867	55	Manitoba—		
St. Francis, River St. Lawrence	LW 857		Athapapuskow.....	956	104
(total, 88) part.....		63	Atikameg.....	855	112
St. John.....	321	414	Beaverhill.....	651	70
St. Louis.....	69	57	Cedar.....	830	517
St. Pierre (Peter).....	11	142	Cormorant.....	840	174
Simard.....	859	73	Cross (Nelson River).....	679	274
			Dauphin.....	853	200
			Dog.....	815	64
			Etawney.....		28
			Gods.....	585	319

5.—Elevations and Areas of Principal Lakes, by Province—concluded

Province and Lake	Elevation ft.	Area sq. miles	Province or Territory and Lake	Elevation ft.	Area sq. miles
Manitoba—concluded			Alberta—		
Goose	922	53	Athabasca (total, 3,120) part	699	940
Granville	850	181	Beaverhill	2,202	80
Island	744	550	Buffalo	2,566	56
Kamuchawie (total, 57) part	1,156	31	Calling	1,949	55
Kipahigan (total, 60) part	966	29	Claire	695	545
Kiskitto	697	65	Cold (total, 138) part	1,756	92
Kiskittogisu	710	99	La Biche	1,784	94
Kississing	920	138	Lesser Slave	1,892	461
Manitoba	812	1,817	Mamawi	695	64
Molson	154	154	Peerless	2,269	75
Moose	838	525	Primrose (total, 188) part	1,964	8
Namew (total, 80) part	872	8	Sullivan (variable)	2,651	6
Northern Indian	760	150	Utikuma	2,115	85
Nueltin (total, 850) part	920	270			
Oxford	612	155	British Columbia—		
Paint	615	54	Adams	1,334	52
Pelican (west of Lake Winnipegosis)	837	80	Atlin (total, 299) part	2,192	298
Playgreen	712	257	Babine	2,332	194
Red Deer (west of Lake Winnipegosis)	862	100	Chilko	3,860	75
Reed	911	78	Eutsuk	2,817	96
Reindeer (total, 2,467) part	1,156	371	François	2,345	91
St. Martin	798	125	Harrison	35	87
Setting	737	49	Kootenay	1,745	168
Sipiwesk	598	201	Kotcho	1,970	31
Sisipuk (total, 103) part	919	71	Lower Arrow	1,370	59
Southern Indian	835	1,060	Okanagan	1,123	136
Stevensen	849	75	Ootsa	2,666	50
Swan	845	118	Quesnel	2,380	100
Talbot	845	72	Shuswap	1,135	120
Todatara (total, 241) part	679	158	Stuart	2,230	139
Walker	829	62	Tagish (total, 130) part	2,152	78
Waterhen	840	90	Takla	2,260	102
Wekusko	713	64	Teslin (total, 142) part	2,239	58
Winnipeg	833	9,465	Upper Arrow	1,401	88
Winnipegosis	833	2,103	Yukon Territory—		
Woods, Lake of the (total, 1,695) part (reservoir)	1,060	69	Aishihik	3,001	107
			Atlin (total, 299) part	2,192	1
			Kluane	2,525	184
			Kusawa	2,200	56
			Laberge	2,100	87
			Tagish (total, 130) part	2,152	52
			Teslin (total, 142) part	2,239	84
Saskatchewan—			Northwest Territories—		
Amisk	964	168	Aberdeen	135	475
Athabasca (total, 3,120) part	699	2,180	Artillery	1,190	153
Besnard	1,278	72	Aylmer	1,230	340
Black Birch	1,517	54	Baker	30	975
Candle	1,621	56	Clinton-Colden	1,230	253
Canoe	1,415	78	Dubawnt	700	1,600
Churchill	1,382	213	Faber	753	163
Cold (total, 138) part	1,756	46	Franklin	175	175
Cree	1,570	446	Garry	980	980
Cumberland	871	98	Gras, de	1,300	345
Deschambault	1,072	209	Great Bear	390	12,275
Doré	1,506	248	Great Slave	512	10,980
Île à la Crosse	1,380	166	Hardisty	699	107
Kamuchawie (total, 57) part	1,156	26	Hottah	640	377
Kipahigan (total, 60) part	966	31	Kaminuriak	320	360
La Plonge	1,476	90	La Martre	870	685
La Ronge	1,198	552	Maddougal	265	265
Last Mountain	1,606	89	Mac Kay	1,415	250
Methy Lake (Loche, La)	1,460	76	Maguse	540	540
Montreal	1,608	162	Marian	513	90
Namew (total, 80) part	872	72	Nueltin (total, 850) part	920	580
Nemeiben	1,259	63	Nutarawit	350	350
Peter Pond	1,382	302	Pelly	265	331
Pinehouse	1,260	159	Point	1,200	295
Primrose (total, 188) part	1,964	180	Rae	748	74
Quill	1,703	236	Schultz	125	110
Reindeer (total, 2,467) part	1,150	2,096	Thaolintoo	125	160
Riou	75	75	Todatara (total, 241) part	85	85
Sisipuk (total, 103) part	919	32	Yathkyed	480	860
Smoothstone	1,573	110			
Tazin	1,130	156			
Wollaston	1,300	796			

Subsection 3.—Coastal Waters*

The coastline of Canada, one of the longest of any country in the world, comprises the following estimated milages:—

Mainland—

Atlantic, 6,110; Pacific, 1,580; Hudson Strait, 1,245; Hudson Bay, 3,155; Arctic, 5,770; total, 17,860 miles.

Islands—

Atlantic, 8,680; Pacific, 3,980; Hudson Strait, 60; Hudson Bay, 2,305; Arctic, 26,785; total, 41,810 miles.

A comprehensive description of the coastal waters of Canada would require information from sciences such as oceanography, marine biology and meteorology. However, the basic factor in any study of the oceanic-continental margin is the physical relief of the sea floor, and the scope of the information presented here is therefore restricted to this and a few salient features of the Atlantic, Arctic and Pacific marginal seas surrounding Canada.

Atlantic.—Along this coastal area, the sea has inundated valleys and lower parts of the Appalachian Mountains as well as those of the Canadian Shield. The submerged continental shelf, protruding seaward from the shore, effects the transition from continental to oceanic conditions. This shelf is distinguished by great width and diversity of relief. From the coast of Nova Scotia its width varies from 60 to 100 miles, from Newfoundland 120 to 50 miles (at the entrance of Hudson Strait), and northward it merges with that of the Arctic Ocean. The outer edge of the shelf, known as the continental shoulder, is of varying depths of from 100 to 200 fathoms before the shelf suddenly gives way to the steep declivity leading to abyssal depths. The over-all gradient of the Atlantic continental shelf is slight but the whole area is studded with shoals, plateaux, banks, ridges and islands and the coasts of Nova Scotia and Newfoundland are rugged and fringed with islets and shoals. Off Nova Scotia the 40-fathom line lies at an average of 12 miles from the shore and constitutes the danger line for coastal shipping. The whole floor of the marginal sea appears to be traversed by channels and gullies cutting well into the shelf.

The main topographical features of the Atlantic marginal sea floor are attributed to glacial origin but land erosion is an important factor. Eroded materials are carried seaward by rivers, ice and wind, and wave action against cliffs and shore banks washes away enormous masses that are deposited over the surrounding sea floor. The topography of the continental sea floor is therefore constantly changing and navigation charts of Canada's eastern seaboard must be continuously revised.

Hudson Bay and Hudson Strait bite deeply into the Continent. Hudson Bay is an inland sea 250,000 sq. miles in area having an average depth of about 70 fathoms; the greatest charted depth in the centre of the Bay is 141 fathoms.

Hudson Strait separates Baffin Island from the continental coast and connects Hudson Bay with the Atlantic Ocean. It is 430 miles long and from 37 to 120 miles wide and its greatest charted depth of 481 fathoms is close inside the Atlantic entrance. Great irregularities of the sea floor are indicated but, except in inshore waters, few navigation hazards have been located.

Arctic.—The submerged plateau extending from the northern coast of North America is a major part of the great continental shelf surrounding the Arctic Ocean, on which lie all the Arctic islands of Canada, Greenland, and most of the Arctic islands of Europe and

* The Federal Government's oceanographic research program is outlined in Chapter XIII.

Asia. This shelf is most uniformly developed north of Siberia, where it is about 500 miles wide; north of North America it surrounds the western islands of the Archipelago and extends 50 to 300 miles seaward from the outermost islands.

The topography of the floor of the submerged part of this continental margin is only partly explored but sufficient has been charted to indicate, in common with continental shelves throughout the world, an abrupt break at the oceanward edge to the relatively steep declivity of the continental slope. This slope borders the western side of the Queen Elizabeth Islands and, from it, deep well-developed troughs enter between the groups of islands. Sills across Davis Strait, Barrow Strait and other channels, on which the depth is about 200 fathoms, interrupt the network of deep troughs and separate the Arctic basin from the Atlantic.

That part of the continental shelf bordering the Arctic Ocean in the vicinity of the Queen Elizabeth Islands (see below) is the subject of extensive study. Since 1959 a party based at the joint Canadian-United States weather station at Isachsen on Ellef Ringnes Island has been investigating the oceanography, hydrography, submarine geology, gravity, geomagnetic features and crustal seismic properties of the continental shelf area, carrying out physiographic, hydrological, permafrost and glaciological studies on the islands of the region, mapping the nature, distribution and movement of the sea ice, and running basic topographic control surveys. This work is continuing, with a party in the field from March to September each year, and should eventually cover all of the unmapped parts of the shelf between Greenland and Alaska. The investigations should yield detailed and accurate information on the physical and chemical composition and dynamic characteristics of the Arctic oceanic waters, the bathymetry of the continental shelf and slope and the straits and sounds of the Archipelago; the topography and structure of the shelf and the nature of its sediments, its underlying rocks and possible mineral resources; the structure and physical characteristics of the northern edge of the North American continental platform and its contact with the Arctic Ocean basin; the factors controlling the development of the Arctic landscape and the evolution of the islands; and the behaviour of sea level, glaciers, sea ice and climate in the recent geological past.

Pacific.—The marginal sea of the Pacific differs strikingly from the other marine zones of Canada. The hydrography of British Columbia is characterized by bold, abrupt relief—a repetition of the mountainous landscape. Numerous inlets penetrate the mountainous coast for distances of 50 to 75 miles. They are usually a mile or two in width and of considerable depth, with steep canyon-like sides. From the islet-strewn coast, the continental shelf extends from 50 to 100 sea miles to its oceanward limit where depths of about 200 fathoms are found. There the sea floor drops rapidly to the Pacific deeps, parts of the western slopes of Vancouver Island and the Queen Charlotte Islands lying only four miles and one mile, respectively, from the edge of the declivity. These great detached land masses are the dominant features of the Pacific marginal sea. As is to be expected in a region so irregular in hydrographic relief, shoals and pinnacle rocks are numerous, necessitating cautious navigation.

Subsection 4.—Islands

The largest islands of Canada are in the north and all experience an arctic climate. The northern group extends from the islands in James Bay to Ellesmere Island which reaches 83°07'N. Those in the District of Franklin lie north of the mainland of Canada and are generally referred to as the Canadian Arctic Archipelago; those in the extreme north—lying north of the M'Clure Strait-Viscount Melville Sound-Barrow Strait-Lancaster Sound water passage—are known as the Queen Elizabeth Islands.

On the West Coast, Vancouver Island and the Queen Charlotte Islands are the largest and the most important but the coastal waters are studded with many small rocky islands.

The Island of Newfoundland forming part of the Province of Newfoundland, the Province of Prince Edward Island, Cape Breton Island forming part of the Province of Nova Scotia, Grand Manan and Campobello Islands forming part of the Province of New Brunswick, and Anticosti Island and the Magdalen group included in the Province of Quebec are the largest islands off the East Coast.

Notable islands of the inland waters include Manitoulin Island (1,068 sq. miles in area) lying in Lake Huron, the so-called Thirty Thousand Islands of Georgian Bay and the Thousand Islands in the outlet from Lake Ontario into the St. Lawrence River.

6.—Areas of Principal Islands, by Region

Region and Island	Area sq. miles	Region and Island	Area sq. miles
Arctic Archipelago—		Hudson Bay and Strait—concluded	
Northern Region (Queen Elizabeth Islands)—		Mansel.....	1,285
Ellesmere.....	82,119	Akimiski (James Bay).....	1,137
Devon.....	20,861	Belcher (total for group).....	1,118
Melville.....	16,369	Nottingham.....	543
Axel Heiberg.....	15,779	Resolution.....	387
Bathurst.....	7,609	Salisbury.....	312
Prince Patrick.....	6,081	Big.....	310
Ellef Ringnes.....	5,139	Akpatok (Ungava Bay).....	296
Cornwallis.....	2,670	Charlton (James Bay).....	119
Amund Ringnes.....	2,515	Edgell.....	106
Mackenzie King.....	1,922	Killinek.....	104
Borden.....	1,344	Pacific Coast—	
Cornwall.....	1,292	Vancouver.....	12,408
Eglinton.....	551	Queen Charlotte.....	3,705
King Christian.....	448	Graham.....	2,491
Lougheed.....	413	Moresby.....	691
Brock.....	396	Louise.....	108
Cameron.....	396	Lyell.....	63
Byam Martin.....	376	Kunglüt.....	62
Meighen.....	293	Princess Royal.....	870
Graham.....	293	Pitt.....	537
North Kent.....	258	Banks.....	400
Emerald.....	251	King.....	324
Coburg.....	141	Porcher.....	199
Little Cornwallis.....	139	Nootka.....	198
Baillie Hamilton.....	114	Aristazabal.....	167
Southern Region—		Gilford.....	151
Baffin.....	183,810	Hawkesbury.....	143
Victoria.....	81,930	Hunter.....	136
Banks.....	23,230	Calvert.....	118
Prince of Wales.....	12,830	Texada.....	117
Somerset.....	9,370	Swindle.....	109
King William.....	4,955	Quadra.....	103
Bylot.....	4,200	McCauley.....	102
Prince Charles.....	2,639	Gil.....	94
Stefansson.....	2,890	Roderick.....	88
Air Force.....	596	Gribbell.....	86
Wales.....	439	Atlantic Coast—	
Rowley.....	436	Newfoundland	
Vansittart.....	386	Labrador Coast	
Russell.....	349	South Aulatsivik.....	167
Jens Munk.....	330	Okak (total for two).....	113
White.....	301	Tunungayualok.....	72
Bray.....	281	North Aulatsivik.....	53
Foley.....	261	Island—	
Koch.....	183	Newfoundland.....	43,359
Matty.....	173	Fogo.....	95
Royal Geographical Society		New World.....	73
(the larger of two).....	173	Gulf of St. Lawrence—	
Jenny Lind.....	170	Cape Breton.....	3,970
Crown Prince Frederic.....	170	Anticosti.....	3,043
Prescott.....	167	Prince Edward.....	2,184
Loks Land.....	164	Magdalen (total for group).....	88
Melbourne.....	149	Shippegan.....	59
Tennent.....	118	Bay of Fundy—	
Gateshead.....	86	Grand Manan.....	55
Hudson Bay and Strait—			
Southampton.....	15,700		
Coats.....	2,206		

Subsection 5.—Mountains and Other Heights

The predominant geographical feature in Canada is the Great Cordilleran Mountain System which contains many peaks over 10,000 feet in height. The highest peak in Canada is Mount Logan in the St. Elias Mountains of Yukon Territory, which rises 19,850 feet above sea level. The highest elevations in all parts of the country are shown in Table 7 in feet above mean sea level.

7.—Principal Heights in each Province and Territory

NOTE.—Certain peaks, indicated by an asterisk (*), form part of the line of demarcation between political subdivisions. Although their bases technically form part of both areas, they are listed only under one to avoid duplication.

Province and Height	Elevation	Province and Height	Elevation
	ft.		ft.
Newfoundland		Quebec—concluded	
Long Range—		Shield—	
Lewis Hills.....	2,672	Mount Tremblant.....	3,150
Gros Morne.....	2,644	Mount Ste. Anne.....	2,625
Mount St. Gregory.....	2,251	Mount Sir Wilfrid.....	2,569
Gros Pâté.....	2,152	Monteregian Hills—	
Blue Mountain.....	2,123	St. Hilaire Mountain.....	1,350
Table Mountain.....	1,900-1,950	Yamaska Mountain.....	1,350
Blue Hills of Coteau—		Rougemont.....	1,260
Peter Snout.....	1,600-1,650	Mount Johnson.....	750
Central Highlands—		Mount Royal.....	750
Main Topsail.....	1,822		
Mizzen Topsail.....	1,761	Ontario	
Torngats—		Tip Top Hill.....	2,120
Cirque Mountain.....	5,160	Mount Batchawana.....	2,100
Mount Cladonia.....	4,725	Niagara Escarpment—	
Mount Eliot.....	4,550	Osler Bluff.....	1,700
Mount Tetragona.....	4,500	Caledon Mountain.....	1,400
Quartzite Mountain.....	3,930	Blue Mountain.....	1,250
Blow Me Down Mountain.....	3,880	High Hill.....	1,150
Kaumjets—		Mount Nemo.....	1,000
Bishops Mitre.....	4,060		
Finger Hill.....	3,390	Manitoba	
Nova Scotia		Duck Mountain.....	2,727
(Spot height—Cape Breton).....	1,747	Porcupine Mountain.....	2,700
Ingonish Mountain.....	1,392	Riding Mountain.....	2,000
Nutby Mountain (Cobequid).....	1,204		
Dalhousie Mountain (Cobequid).....	1,115	Saskatchewan	
North Mountain (4 miles NE of West Bay Road).....	875	Cypress Hills.....	4,546
Sporting Mountain.....	675	Wood Mountain (West Summit).....	3,371
		Wood Mountain (East Summit).....	3,347
New Brunswick		Vermilion Hills.....	2,500
Mount Carleton.....	2,690		
Green Mountain.....	1,596	Alberta	
Moose Mountain.....	1,490	Rockies—	
Quebec		*Mount Columbia.....	12,294 ²
Appalachians—		The Twins (N Peak).....	12,085
Mount Jacques Cartier (Shickshocks).....	4,160	Mount Forbes.....	11,902
Mount Richardson.....	3,885	Mount Alberta.....	11,874
Barn Mountain.....	3,775	*Mount Assiniboine.....	11,870 ²
Mount Logan.....	3,700	The Twins (S Peak).....	11,675
Mégantic Mountain.....	3,625	Mount Temple.....	11,636
Mount Albert.....	3,550	Mount Kitchener.....	11,500
Bayfield Mountain.....	3,470	*Mount Lyell.....	11,495 ²
Mattawa Mountain.....	3,370	*Mount Hungabee.....	11,457 ²
Roundtop (Sutton Mountains).....	3,175	Mount Athabasca.....	11,452
Hereford Mountain.....	2,760	*Mount King Edward.....	11,400 ²
Orford Mountain.....	2,750	Stutfield Mountain.....	11,400
Pinnacle Mountain.....	2,150	Mount Brazeau.....	11,386
Brome Mountain.....	1,800	*Mount Victoria.....	11,365 ²
Shefford Mountain.....	1,725	*The Snow Dome.....	11,340 ²
		*Mount Joffre.....	11,316 ²
		*Mount Deltaform.....	11,235 ²

For footnotes, see end of table.

7.—Principal Heights in each Province and Territory—concluded

Province and Height	Elevation	Province or Territory and Height	Elevation
	ft.		ft.
Alberta—concluded		British Columbia—concluded	
Rockies—concluded		Rockies—concluded	
*Mount Lefroy.....	11,230 ²	Mount Laussedat.....	10,035
*Mount Alexandra.....	11,214 ²	Mount Burgess.....	8,473
*Mount Sir Douglas.....	11,174 ²		
Woolley Mountain.....	11,170		
*Lunette Peak.....	11,150 ²		
Mount Hector.....	11,135		
Diadem Peak.....	11,060		
Mount Edith Cavell.....	11,033		
Mount Chown.....	10,930		
Mount Wilson.....	10,631		
Clearwater Mountain.....	10,420		
Mount Coleman.....	10,262		
Eiffel Peak.....	10,101		
Pinnacle Mount.....	10,072		
Mount Fryatt.....	10,026		
Mount Rundle.....	9,838		
The Three Sisters.....	9,744		
Mount Eisenhower.....	8,750		
Mount Edith.....	8,370		
British Columbia			
Vancouver Island Range—			
Mount Albert Edward.....	6,968		
Mount Arrowsmith.....	5,960		
Coast Range—			
Mount Waddington.....	13,260		
St. Elias Range—			
*Mount Fairweather.....	15,300 ²		
*Mount Root.....	12,860 ²		
Columbia Mountains—			
Monashee—			
Mount Begbie.....	8,956		
Storm Hill.....	5,300		
Selkirk—			
Mount Dawson.....	11,020		
Adamant Mountain.....	10,980		
Grand Mountain.....	10,842		
Iconoclast Mountain.....	10,630		
Mount Rogers.....	10,525		
Rockies—			
Mount Robson.....	12,972		
Clemenceau Mountain.....	12,001		
Mount Goodsir.....	11,686		
Mount Bryce.....	11,507		
Resplendent Mountain.....	11,240		
Mount King George.....	11,226		
Consolation Mountain.....	11,200		
The Helnet.....	11,160		
Whitehorn Mountain.....	11,101		
Mount Huber.....	11,051		
Geikie Mountain.....	11,016		
Bush Mountain.....	11,000		
Freshfield Mountain.....	10,945		
Mount Mummery.....	10,918		
Mount Vaux.....	10,881		
*Mount Ball.....	10,865 ²		
Mount Sir Alexander.....	10,740		
Churchill Peak.....	10,500		
Mount Stephen.....	10,495		
Cathedral Mountain.....	10,464		
Mount Gordon.....	10,346		
President Mountain.....	10,287		
Mount Odaray.....	10,175		
		Yukon Territory	
		St. Elias Mountains—	
		Mount Logan.....	19,850
		*Mount St. Elias.....	18,008 ⁴
		Mount Lucania.....	17,150
		King Peak.....	17,130
		Mount Steele.....	16,440
		Mount Wood.....	15,880
		*Mount Vancouver.....	15,700 ⁴
		Mount Hubbard.....	14,950 ⁴
		Mount Walsh.....	14,780
		*Mount Alverstone.....	14,500 ⁴
		McArthur Peak.....	14,400
		Mount Augusta.....	14,070
		Mount Kennedy.....	13,900 ⁵
		Strickland Mountain.....	13,818
		Mount Newton.....	13,811
		Mount Cook.....	13,760
		Mount Craig.....	13,250
		Badham Mountain.....	12,625
		Mount Malaspina.....	12,150
		Mount Jeannette.....	11,700
		Baird Mountain.....	11,375
		Mount Seattle.....	10,070
		Northwest Territories	
		Arctic Islands—	
		Baffin—	
		Penny Highland (Ice Cap).....	8,200-8,500
		Mount Thule.....	5,800 ⁵
		Cockscomb Mountain.....	5,300 ⁵
		Barnes Ice Cap.....	3,700 ⁵
		Knife Edge Mountain.....	2,700 ⁵
		Ellesmere—	
		United States Range.....	9,600 ⁵
		Commonwealth Mountain.....	7,500 ⁵
		Mount Townsend.....	7,200 ⁵
		Mount Jeffers.....	6,500 ⁵
		Mount Wood.....	5,900 ⁵
		Mount Cheops.....	5,200 ⁵
		Devon—	
		Ice Cap.....	6,190
		Mackenzie King—	
		Lefniewell Crags.....	1,500
		Banks—	
		Durham Heights.....	2,460
		Victoria—	
		Shaler Mountain.....	2,000
		Mount Bumpus.....	1,700
		Mainland—	
		Mount Sir James MacBrien.....	9,062
		Franklin Mountains—	
		Cap Mountain.....	5,175
		Mount Clark.....	4,733
		Pointed Mountain.....	4,550
		Nahanni Butte.....	4,500
		Richardson Mountains—	
		Mount Goodenough.....	3,219

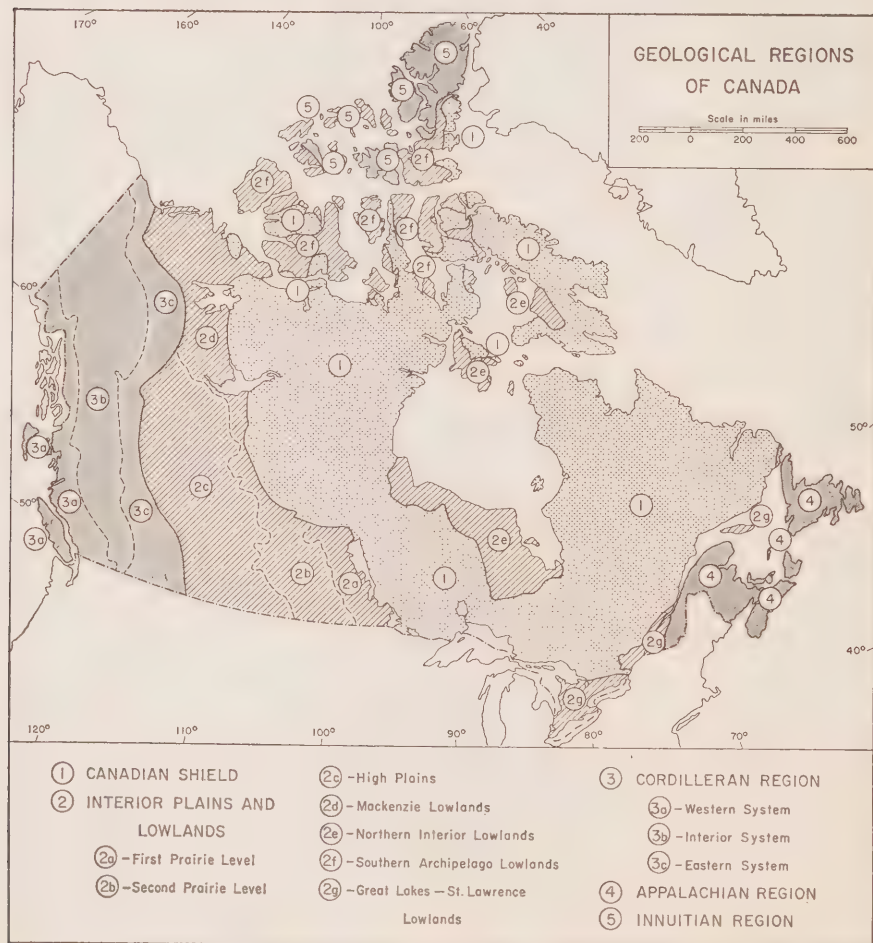
¹ The summit of the Cypress Hills, with an elevation of 4,810 feet, is in Alberta.
British Columbia boundary. ² Part of the British Columbia-Alaska boundary.
Alaska boundary. ³ Approximate.

⁴ Part of the Alberta-
Yukon boundary.

Section 2.—Geology*

North America comprises six main natural regions which are both physiographic and geological because the ages, kinds and structures of the underlying rocks determine the natures of the land surfaces. Knowledge of these regions is important because their geological characteristics have much influence on the suitability of different areas for such activities as agriculture, mining, petroleum production and sports, and contribute as well to the varied scenery of the country. The six regions are: the Canadian Shield, a vast area of ancient rocks that is mainly in Canada; the Interior Plains and Lowlands, the largest area of which extends throughout the mid-Continent from the Gulf of Mexico to the Arctic Ocean; the Appalachian Region, mainly in the United States but also forming an important

*Prepared by Dr. A. H. Lang and published by permission of the Director, Geological Survey of Canada, Ottawa.



part of Eastern Canada; the Cordilleran Region, extending along the entire west coast of the Continent; the Atlantic Coastal Plain along the eastern seaboard of the United States; and the Innuitian Region, a mountainous belt in the Arctic Archipelago. Canada includes parts of four of these regions and all of the Innuitian Region, but none of the Atlantic Coastal Plain.

The Canadian Shield, embracing about one half of the total area of Canada, is a roughly horseshoe or shield shaped terrain of some 1,850,000 sq. miles, having Hudson Bay at its approximate centre. The Shield continues into the United States west and south of Lake Superior, and east of the upper St. Lawrence River where a belt of resistant rocks called the Frontenac Axis forms the Thousand Islands and, to the south, broadens to form the Adirondack area. Far back in geological time the Shield contained many ranges of high mountains but these have been mainly worn down to a surface of moderate relief consisting of hills, ridges and valleys containing innumerable lakes and streams. Most of the surface is from 600 to 1,200 feet above sea level but higher uplands form such well-known features as the Laurentian Mountains north of Montreal and the Haliburton Highlands in southeastern Ontario. Along the coast of Labrador and in Baffin Island are mountains rising 5,200 and 8,500 feet, respectively, above the sea. The Shield is a complex assemblage of Precambrian rocks that, as a whole, represent at least five sixths of the long duration of geological time. Most of the rocks have been subjected to more than one and in some cases several periods of orogeny, resulting in intricate structures, intense metamorphism, widespread igneous intrusions, and alteration of much ancient sedimentary rock to granite and related material. These complexities combined with the absence of fossils, which facilitate the correlation of strata younger than Precambrian, hamper interpretation of the geology of the Shield. Nevertheless, progress has been made and methods developed in Canada have been applied to Precambrian shields of other continents.

Flanking the Shield are large expanses of plains and lowlands underlain by relatively young and soft rocks overlain in many places by good agricultural soils. A notable characteristic of the boundary between the Shield and the Lowlands is the presence of large lakes that lie partly in rock basins in the Shield and partly in depressions in the younger strata. The most prominent are Great Bear Lake, Great Slave Lake, Lake Athabasca, Lake Winnipeg and Lake Huron. The largest lowland area is that of the Interior Plains, sometimes called the Great Plains or Western Interior Lowlands. These constitute the prairies of Western Canada and their wooded continuation to the north. The Northern Interior Lowlands include the Hudson Bay Lowlands south of Hudson Bay, the Foxe Basin Lowlands in and near western Baffin Island, and the Southern Archipelago Lowlands which occupy large parts of the more southerly Arctic islands. The Arctic Coastal Plain bordering the Arctic Ocean is sometimes classed as a separate physiographic region comparable to the Atlantic Coastal Plain but is here grouped with the other plains and lowlands for simplicity. The Great Lakes-St. Lawrence Lowlands form two important agricultural and industrial areas in southern Ontario, separated by the Frontenac Axis; the more easterly continues in Quebec, on both sides of the St. Lawrence River, and an isolated continuation forms Anticosti Island. Sedimentary strata of Palæozoic and younger ages overlap the Shield to form the Plains and Lowlands. These strata once covered much more of the Shield before being removed by erosion. The Shield continues under the Plains, as is proved by numerous wells drilled for oil or gas in the Great Plains and in southern Ontario having been

bottomed in typical Shield rocks, but it is customary to regard the Canadian Shield Region as the part that is exposed or covered by glacial deposits. The overlying strata are undisturbed or gently tilted or flexed, the Shield and the Plains and Lowlands together forming a central continental region that has been relatively stable since Precambrian time, while orogenies were active in the flanking geosynclinal belts now indicated by the Appalachian, Cordilleran and Innuitian mountains.

The Canadian Cordilleran Region is a northwesterly-trending belt about 500 miles wide composed of high mountains and lower plateaux and valleys. It comprises southwestern Alberta, all of British Columbia except its northeastern corner, almost all of Yukon Territory and the southwestern part of the Northwest Territories. The individual mountain groups and plateaux are arranged in a complex pattern divisible into three parallel northwesterly-trending zones; in most places these zones are quite distinct and are called the Western, Interior and Eastern Systems. The greater part of the Western System is composed of the high, rugged Coast Mountains along the mainland coast of British Columbia. Along part of the Yukon-Alaska boundary they are flanked to the southwest by the still higher St. Elias Mountains. Separated from the mainland by the Insular Passage are ranges forming Vancouver and Queen Charlotte Islands. The Interior System is a complex group of plateaux and mountains. The Eastern System is divided into the Northern Ranges and the Rocky Mountains, separated by a plain and plateau along the Liard River near the British Columbia-Yukon boundary. The main features of the Northern Ranges are the British and Richardson Mountains near the Arctic Coast, and the Mackenzie and Franklin Mountains in the western part of the Northwest Territories. The Rockies are composed of high, serrated ranges extending northward from the 49th Parallel; the elevation of the highest peak, Mount Robson, is 12,972 feet. Flanking them on the east are the Rocky Mountain Foothills which form a transition with the Plains. Because the Rocky Mountains, although extensive, are but a relatively small part of the mountains of Western Canada, the popular tendency to apply the name to the entire Canadian Cordillera is inadmissible.

The Cordillera are on the site of a great geosyncline where sediments were laid down at least as early as late Precambrian time, where marine sedimentation continued in places as late as the Upper Cretaceous, and where freshwater sediments were deposited locally during the Tertiary. The principal mountain-building and igneous processes of which good evidences remain began locally in early Mesozoic time, culminated in the western Cordillera in the Nevadan orogeny in late Jurassic and early Cretaceous time, but was not significant in the eastern Cordillera until the Laramide orogeny early in the Tertiary. Thus the western Cordillera were formed much earlier than the eastern, were largely worn down by erosion by the time the Rockies and other eastern mountains were built, and the western part of the region was uplifted at the time of the Laramide orogeny so that renewed erosion could carve the surface into the present mountains and plateaux. The strata in the western Cordillera are intruded by many bodies of igneous rocks, from small to very large in size. Most are granodiorite or diorite but many others are granite, gabbro or other related types: still others are ultrabasic, i.e., composed mainly of iron and magnesium minerals. Most are related to the Nevadan orogeny but some must have been intruded in late Cretaceous or early Tertiary time, and there is incomplete evidence that some are of ages from late Precambrian to Triassic. The intrusions are scattered widely, the largest concentration being the Coast Range Intrusions which form the greater part of the Coast Mountains. Intrusive rocks are rarely exposed in the eastern Cordillera, probably because the mountains there have not been eroded sufficiently to reveal many.

The Appalachian Region is the northern continuation of a long belt of folded strata extending along the eastern side of the United States. It is on the site of a geosyncline that existed mainly in Palaeozoic time in which great thicknesses of sedimentary and volcanic strata were laid down. The northwestern boundary of the region is a long curving fault or zone of faults which extends from Lake Champlain at least as far as the Gulf of St. Lawrence and which causes the curved shape of the northern coast of Gaspe. The strata in the Appalachians have been folded and faulted by successive periods of orogeny along axes that strike northeasterly; thus strata of different kinds and ages and belts of intrusive rocks form northeasterly-trending bands, many of which are responsible for the peninsulas, bays and ridges of the region. Three principal periods of orogeny—the Taconic, the Acadian and the Appalachian—have been recognized. The Taconic occurred at the close of the Ordovician, the Acadian during the Devonian, and the Appalachian at the close of the Palaeozoic. In Canada the Taconic disturbances were fairly widespread, the Acadian were more so, affecting areas that were previously affected by the Taconic and areas that were not, but the Appalachian orogeny, which was a major feature in parts of the United States, was of minor and local importance.

The Innuitian Region is underlain by moderately-to-intensely folded sedimentary, volcanic and metamorphic rocks of various ages, the oldest being probably Proterozoic and the youngest being Tertiary. Folding occurred at different times and in different directions, some in early Devonian time, some late in the Palaeozoic era, and some in Tertiary time. Five fold-belts have been recognized—Cornwallis, Parry Islands, Central Ellesmere, Northern Ellesmere and Eureka Sound. Granitic intrusions have been found in the Northern Ellesmere belt.

Brief sketches of the geological regions together with an outline of geological processes are given in the 1961 Year Book at pp. 1-14. Further information is supplied by *Geology and Economic Minerals of Canada* (\$2, including Map 1045A) and *Prospecting in Canada*; the latter also contains chapters on the principles of geology and on minerals and rocks. The *Geological Map of Canada* (1045A, 50 cents) and *Canada, Principal Mining Areas* (900A) are also recommended. Map 900A is revised annually; one copy is sent free to residents of Canada and additional copies are 25 cents each. These publications may be ordered from the Director, Geological Survey of Canada, together with lists of reports and maps of the Geological Survey of Canada on specific topics and areas, for each province. Other publications are available from provincial departments of mines.

Section 3.—Federal Government Surveying and Mapping*

In Canada, the needs for maps and technical surveys are met largely by the Department of Mines and Technical Surveys. Although not all branches of this Department make surveys and compile maps, most of them are involved in such work either wholly or partly. They compile topographical, geological and aeromagnetic maps, aeronautical and hydrographic charts, electoral and boundary maps, land-use maps, and other special maps. The basis for these maps is provided by geodetic and other control surveys.

The Department is an engineering and research complex. It has a staff of about 4,000, of whom 1,000 are scientists and engineers, and 1,300 are technicians. Each year,

* Prepared by H. G. Classen, Special Projects Section, Editorial and Information Division, Department of Mines and Technical Surveys, Ottawa.

some 1,500 men are sent into the field to make surveys and to carry out research, the results of which are ultimately published in the form of maps, charts and reports.

The Department's branches engaged in technical surveys are the Surveys and Mapping Branch, which carries out geodetic and topographic surveys and produces base maps, electoral and other special maps and aeronautical charts; the Marine Sciences Branch, which produces hydrographic charts of Canada's sea coasts and inland waters; the Geological Survey of Canada, which maps geological features; the Observatories Branch, which produces geophysical maps; and the Geographical Branch, which produces a number of special maps.

The surveys and maps produced by the Department are the result partly of long-range plans based on general national needs and partly of requests from private enterprise and other government agencies. To avoid duplication, the Department co-ordinates its work with provincial and private mapping organizations. Hydrographic and aeronautical charts, however, are produced exclusively by the Department.

The methods and techniques used by the surveyors and map-makers must frequently be adapted to the peculiarities of the Canadian geography, which are, above all, great distance and, over most of the country, a harsh climate. Of inestimable help in overcoming these difficulties have been the aeroplane, the helicopter and electronic distance-measuring devices such as the geodimeter, the tellurometer and the aerodist. Together with photogrammetry (i.e., plotting of maps from air photographs) these techniques make it possible for field parties to map relatively large areas accurately without ever setting foot in them. In a trial project in 1963, for example, a topographical party in northwestern Ontario, using the aerodist, established survey control for 37,000 sq. miles of territory on a scale of 1:50,000 in seven and a half days. By conventional methods, such a project would have taken several years to complete in this difficult terrain.

Small fixed-wing aeroplanes and helicopters play a large role in transporting survey parties from point to point in areas where no other means of transportation exists, so that most of the time formerly lost in slow and laborious progress by pack-horse or canoe can now be used for actual survey work, be it topographical, geological or geophysical. The helicopter is also used to advantage in hydrographic surveying. The two largest ships of the Marine Sciences Branch have helicopters based on them, and depth-sounding in the ice-infested waters of the Arctic has been made easier by the use of echo-sounders towed by helicopters.

In geological mapping, older reconnaissance methods have been supplemented by such novel investigations as geochemistry and biogeochemistry, in which minute quantities of minerals found in the surface soil, in creeks and in vegetation are analysed to map out major mineral deposits. In geophysics, the airborne magnetometer, the various adaptations of the gravimeter for measurements at sea and on the ice, the study of palaeomagnetism and similar advances have helped to speed up and to make more accurate the mapping of features below the earth's surface and have also brought new areas and new depths within the range of knowledge.

In the drafting and printing of the maps, highly advanced techniques for the automatic transfer of terrain features from air photos to drafting sheets and precise lithographing have been combined to assure speedy processing of field data and the production of colourful, easily understood and relatively inexpensive maps for every type of user, from vacationer to town planner and from prospector to pilot. The large modern printing plant of the Surveys and Mapping Branch also prints maps compiled by the other Branches of the Department as well as maps of other government departments and agencies. The Branch has a stock of almost 12,000,000 maps available, from which it distributes over 1,000,000 annually. Each year the Geological Survey distributes about 350,000 maps and reports, the Marine Sciences Branch distributes about 250,000 charts, and other Branches distribute large numbers of their own maps and charts.

In the field of geodetic surveys, the Department maintains and extends a network of horizontal and vertical control points across Canada. The Geodetic Survey is working on the extension of precise control in the north, and the greater density in the south. Its ultimate aim is to have horizontal and vertical control points no farther apart than 20 miles.

The Topographical Survey is pressing ahead with the topographical mapping of the country at the medium scale of 1:250,000 or about four miles to the inch, which it hopes to have completed in 1967. Nearly 700 of the 925 maps planned are available. It is also producing maps at larger scales, particularly of densely settled areas and for resource development.

The Department carries out legal surveys on Crown lands, such as the two northern territories, National Parks and Indian reserves, and produces the requisite plans. It is also responsible for the preparation of descriptions and diagrams of federal electoral districts, and co-operates with the provinces in the survey and demarcation of inter-provincial boundaries. The survey of the northern boundaries of British Columbia and the Prairie Provinces, for example, started in 1899 and was completed in 1963. The Department also contains the Canadian section of the International Boundary Commission; the Canadian Commissioner and his staff look after the maintenance of international boundary monuments and the boundary vista, and maintain a set of maps and survey records.

Another active field of mapping is the production of aeronautical charts, which are used by aircraft pilots, and show airports, airways and all the radio and other aids necessary for air navigation.

As a service to map-makers and others interested in that field, the Department maintains the National Air Photo Library, a collection of all air photographs taken by or for the Federal Government.

To carry out its hydrographic and oceanographic surveys, the Department has a fleet of ships and launches. Five vessels are based at the Bedford Institute of Oceanography at Dartmouth, N.S., and four at Victoria, B.C. Twelve more ships are planned to cope with the continuing increase in the already high demand for marine charts and information.

The Geological Survey each year places about 100 parties in the field, about half of whom are engaged in reconnaissance mapping. Geological surveys are carried out chiefly to provide an inventory of the potential mineral resources of Canada, to aid in the discovery of mineral deposits, and to help in other aspects of the national economy that are influenced by geological factors. Geologists have mapped about 70 p.c. of the country at scales no smaller than eight miles to the inch.

Both the Geological Survey and the Observatories Branch carry out geophysical surveys.* The geologists use geophysical methods, such as aeromagnetic, seismic and gravity measurements, as an aid in outlining geological features. The geophysicists of the Observatories Branch are concerned with fundamental features, independently of their immediate geological interest. They publish gravity maps at a scale of 1:500,000 and sets of charts of geomagnetism at 100 miles to the inch, and maintain a network of 19 permanent seismological observatories to produce earthquake-probability maps and other studies of the relationship between the structure of the earth and the propagation of seismic shock waves.

In the field of geographical mapping, the Department's geographers produce special maps showing land use; they survey land forms in the Arctic, where ice formation produces surface dislocations found in few other areas; and they also act as the executive arm of the Canadian Permanent Committee on Geographical Names.

* See also Chapter VIII, Sect. 4.

PART II.—PUBLIC LANDS, WILDLIFE AND FLORA

Section 1.—Federal and Provincial Public Lands

In Table 1 classifying the area of Canada by tenure, items 2, 3, 4 and 5 are obtained from Federal Government sources and items 1, 6, 7 and 8 from provincial government sources.

1.—Total Area classified by Tenure (circa) 1964

Item	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.
	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles
1. Privately owned land or land in process of alienation from the Crown.....	6,803	2,058	16,153	15,490	43,500	45,708
2. Federal lands other than leased lands, National Parks, Indian reserves and forest experiment stations.....	160	83	165	612	375 ¹	1,126
3. National Parks.....	153	7	367	79	²	12
4. Indian reserves.....	—	4	40	60	294	2,406
5. Federal forest experiment stations.....	—	—	—	35	7	41
6. Provincial lands other than Provincial Parks and provincial forest reserves.....	148,874	30	4,690	10,672	476,720	357,446 ³
7. Provincial Parks.....	78	⁴	10	2	67,488	5,843
8. Provincial forest reserves.....	117	2	—	1,404	6,478	⁵
Totals.....	156,185	2,184	21,425	28,354	594,860	412,582
	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Canada
	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles
1. Privately owned land or land in process of alienation from the Crown.....	53,313	104,922	97,153	19,857	85	405,042
2. Federal lands other than leased lands, National Parks, Indian reserves and forest experiment stations.....	1,180	5,089	2,925	485	1,508,246 ⁴	1,520,446
3. National Parks.....	1,148	1,496	20,717 ⁶	1,671	3,625 ⁶	29,275
4. Indian reserves.....	816	1,913	2,512	1,282	11	9,338
5. Federal forest experiment stations.....	25 ⁷	—	23	—	12	143
6. Provincial lands other than Provincial Parks and provincial forest reserves.....	188,457	16,529	120,371	287,843	—	1,611,632
7. Provincial Parks.....	2,854 ⁸	2,344	2,317	9,992	—	90,926
8. Provincial forest reserves.....	5,177 ⁸	119,407	9,267	45,125	—	186,977
Totals.....	251,000⁹	251,700	255,285	366,255	1,511,979	3,851,809⁹

¹ Includes Gatineau Park (97 sq. miles) and Quebec Battlefields Park (0.36 sq. mile) which are under federal jurisdiction but are not technically National Parks. ² Less than one square mile. ³ Sect. 46 of the Crown Timber Act which authorized Provincial Forest Reserves was repealed Mar. 25, 1964; all such lands are included in Item 6.

⁴ Includes 952,849 sq. miles set aside by Order in Council as native game preserves in which only Indians and Eskimos may hunt, but which are not regarded as National Parks. ⁵ Includes that part of Wood Buffalo Park in Alberta (13,675 sq. miles); this park, although established under the National Parks Act, is administered by the Northern Administration Branch, Department of Northern Affairs and National Resources.

⁶ That part of Wood Buffalo Park in N.W.T. ⁷ This forest experiment area of 25 sq. miles is also included in National Parks figure. ⁸ Includes 1,945 sq. miles of provincial park land within provincial forest reserves. ⁹ Does not add because of duplications; see footnotes concerned.

Federal Public Lands.—Public lands under the administration of the Federal Government comprise lands in the Northwest Territories including the Arctic Archipelago and the islands in Hudson Strait, Hudson Bay and James Bay, lands in Yukon Territory, Ordnance and Admiralty Lands, National Parks and National Historic Parks and Sites, Forest Experiment Stations, Experimental Farms, Indian reserves and, in general, all public lands held by the several departments of the Federal Government for various purposes connected with federal administration (see Table 1). These lands are administered under the Territorial Lands Act (RSC 1952, c. 263) and the Public Lands Grants Act (RSC 1952, c. 224) which became effective June 1, 1950 and replaced previous legislation.

The largest areas under federal jurisdiction are in the Northwest Territories and Yukon Territory where only 85 sq. miles of a total area of 1,511,979 sq. miles are privately owned. This part of the national domain, with the exception of the islands in Hudson Bay and James Bay, is all north of the 60th parallel of latitude and occupies about 40 p.c. of the surface of Canada. It is under the administration of the Northern Administration Branch of the Department of Northern Affairs and National Resources.

Provincial Public Lands.—Public lands of Nova Scotia, New Brunswick, Quebec, Ontario and British Columbia (except the Railway Belt and Peace River Block) have been administered since Confederation by the provincial governments. In 1930 the Federal Government transferred the unalienated portions of the natural resources of Manitoba, Saskatchewan and Alberta and of sections of British Columbia to the respective governments, and all unalienated lands in the Province of Newfoundland, except those administered by the Federal Government, became provincial public lands under the Terms of Union on Mar. 31, 1949. All land in the Province of Prince Edward Island has been alienated except 126 sq. miles under federal or provincial administration.

Information regarding provincial public lands may be obtained from the respective provinces. (See the Directory of Sources of Official Information, Chapter XXVII, under "Lands and Land Settlement".)

Subsection 1.—National Parks

The National Park concept—the preservation of significant areas in their natural state for the benefit and enjoyment of the public—was developed in North America, and Canada has the second largest number of National Parks and National Historic Parks in the world.

The Canadian system dates from 1885. In that year a 10-sq. mile reserve was established by the Federal Government around the mineral hot springs of Sulphur Mountain at Banff in Alberta and in the following year two spectacular areas in southern British Columbia were set aside as parks. The first National Park was formally established in 1887 by Act of Parliament. By 1930, the National Park system comprised a number of natural and wildlife reserves in Western Canada, three small areas in Ontario, and two small areas in the Atlantic Provinces. Since 1935, four park areas have been added, one in each of the Atlantic Provinces, bringing the total number across the country to 18 and the total area to 29,275 sq. miles.

These Parks are administered by the Natural and Historic Resources Branch of the Department of Northern Affairs and National Resources. According to the National Parks Act of 1930, the Parks are to be preserved for the "benefit, education and enjoyment of the people of Canada" and are to be maintained and used "so as to leave them unimpaired for the enjoyment of future generations". Thus, these areas fulfil their intended function of preserving many unique examples of Canadian scenery, magnificent forests, and varied kinds of plant and animal life. To enable the public to make maximum use of this park heritage, campgrounds, roads, trails, picnic areas, beaches, recreational facilities and, at some parks, golf courses and bathing establishments are provided by the Branch, and motels, hotels, lodges and other visitor services are provided by private enterprise on

land leased from the Federal Government. A relatively new service is extended to park visitors by professional park naturalists who conduct a natural history interpretation program. Each park is in charge of a superintendent and park wardens are on duty to protect the recreational areas, the wildlife and the forests from fire and other destructive forces, and to look after the safety of visitors.

While the National Parks preserve natural features of national importance, National Historic Parks and Sites preserve and identify the places important in the history of Canada. A site is declared of national historical significance by the Minister of Northern Affairs and National Resources on the recommendation of the Historic Sites and Monuments Board of Canada, an advisory board of historians representing all provinces. The National Historic Parks are military or fur-trading forts that have been preserved, historic buildings or reconstruction of historic buildings; most have museums associated with them. There are 594 historic monuments or plaques commemorating personages or events and 19 National Historic Parks, 15 major National Historic Sites operated by the Branch and nine major National Historic Sites leased to local bodies to operate.

2.—Location, Year Established, Area and Characteristics of National Parks and of National Historic Parks and Sites

Park	Location	Year Estab- lished	Area	Characteristics
			sq. miles	
National Parks				
Terra Nova.....	On Bonavista Bay, New- foundland, 205 miles north of St. John's.	1957	153.0	Rocky headlands, wooded interior areas, off-shore and freshwater fishing. Serv- iced campground and cabin accommoda- tion.
Prince Edward Island..	North shore of Prince Edward Island.	1937	7.0	Strip 25 miles long on shores of the Gulf of St. Lawrence. Fine bathing beaches. Hotel and cabin accommodation. Serv- iced campgrounds.
Cape Breton Highlands.	Northern part of Cape Breton Island, N.S.	1936	367.0	Rugged Atlantic coastline with mountain- ous background. Fine seascapes. Hotel and cabin accommodation. Serviced campgrounds.
Fundy.....	On Bay of Fundy between Moncton and Saint John in New Brunswick.	1948	79.5	Interesting rock formations on coast and rolling hills inland. Campground and cabin accommodation. Excellent natu- ralist service.
Georgian Bay Islands..	In Georgian Bay, 3 miles by water from Honey Harbour, Ont.	1929	5.4	Camping, canoeing, hiking, swimming, fishing and boating opportunities. Un- usual geological formations on Flowerpot Island, off Tobermory on Midland Penin- sula. Accessible by boat only.
Point Pelee.....	On Lake Erie near Lea- mington, in south west- ern Ontario.	1918	6.0	Most southerly part of Canadian mainland. Fine bathing beaches. Unusual flora. Resting place for migrating birds. Campgrounds.
St. Lawrence Islands...	In St. Lawrence River be- tween Brockville and Kingston, Ont.	1914	260.0 (acres)	Mainland area and 14 islands with docks, campgrounds and picnic areas. Repre- sentative selection of the Thousand Islands. Islands accessible by boat only.
Riding Mountain.....	Southwestern Manitoba, west of Lake Winnipeg.	1929	1,148.0	Woodland escarpment with fine lakes. Fishing, swimming, trail-riding, hiking and golfing. Visitor services in Wasaga- ming townsites. Campgrounds.
Prince Albert.....	Central Saskatchewan, north of Prince Albert.	1927	1,496.0	Forested region dotted with lakes and interlaced with streams. Fishing, swim- ming, boating and golfing. Marina. Variety of visitor services at Waskesiu townsite.

2.—Location, Year Established, Area and Characteristics of National Parks and of National Historic Parks and Sites—continued

Park	Location	Year Estab- lished	Area	Characteristics
			sq. miles	
National Parks— concluded				
Banff.....	Western Alberta, on east slope of Rockies, 65 miles from Calgary.	1885	2,564.0	Best known and most popular of the National Parks. Magnificent scenery. Mineral hot springs. Resort facilities at Banff and Lake Louise. Skiing developments at Mount Norquay, Mount Whitehorn, Sunshine, Skoki and Temple. On Trans-Canada Highway.
Elk Island.....	Central Alberta, near Edmonton.	1913	75.0	Fenced preserve containing large herd of buffalo; also deer, elk and moose. Popular picnic and day-use area. Cabin accommodation and serviced campground.
Jasper.....	Western Alberta, on east slope of Rockies, 235 miles from Edmonton.	1907	4,200.0	Mountainous area and noted wildlife sanctuary. Majestic peaks, icefields, beautiful lakes and famous resort, Jasper. Mineral hot springs. Connected with Banff by scenic Banff-Jasper Highway. Accessible also by rail. Hotel and cabin accommodation and campgrounds.
Waterton Lakes.....	Southern Alberta, adjoining Glacier Park in Montana, U.S.A.	1895	203.0	Canadian section, Waterton-Glacier International Peace Park. Mountainous area with spectacular parks and beautiful lakes. Accessible by highway. Hotel and cabin accommodation. Serviced and unserviced campgrounds.
Glacier.....	Southeastern British Columbia, on summit of the Selkirk Range.	1886	521.0	Superb alpine region, towering peaks, glaciers and forests. Climbing, hiking and camping. On Trans-Canada Highway. Visitor services at Rogers Pass.
Kootenay.....	Southeastern British Columbia, on west slope of Rockies.	1920	543.0	Includes Vermilion-Sinclair section of Banff-Windermere Highway. Broad valleys, deep canyons, mineral hot springs. Hotel and cabin accommodation. Serviced and unserviced campgrounds.
Mount Revelstoke.....	Southeastern British Columbia, on west slope of Selkirks.	1914	100.0	Mountain-top plateau with rolling alpine meadow and picturesque tarns. No public access by vehicle to summit pending completion of road reconstruction.
Yoho.....	Eastern British Columbia, on west slope of Rockies.	1886	507.0	Lofty peaks, magnificent waterfalls, colourful lakes. Yoho and Kicking Horse Valleys. Accessible by rail and highway. Hotel and cabin accommodation. Serviced and unserviced campgrounds.
Wood Buffalo ¹	Partly in Alberta, and partly in Northwest Territories, between Athabasca and Slave Rivers.	1922	17,300.0	Largest National Park in world. Home of largest remaining herds of plains and wood bison and nesting ground of whooping crane. Accommodation at and access by boat and aircraft from Fort Smith, N.W.T.
National Historic Parks				
			acres	
Signal Hill.....	St. John's, Nfld.....	1958	243.4	Site of 1762 battle between French and British and of many fortifications. Marconi made first transatlantic wireless transmission here in 1901.
Fort Amherst.....	Prince Edward Island, near Rocky Point.	²	222.0	Remaining earthworks of British fort built after 1758.

For footnotes, see end of table, p. 25.

2.—Location, Year Established, Area and Characteristics of National Parks and of National Historic Parks and Sites—continued

Park	Location	Year Estab- lished	Area	Characteristics
			acres	
National Historic Parks—concluded				
Fort Anne.....	Annapolis Royal, N.S.....	1917	31.0	Site of French fort first built about 1635, finally captured and occupied by British in 1710. Museum and well-preserved earthworks.
Fortress of Louisbourg.....	Cape Breton Island, N.S., 25 miles from Sydney.	1940	13,000.0	Walled town built by French 1713-58 and demolished by British 1759. Being partially reconstructed. Archaeological investigations in progress.
Halifax Citadel.....	Halifax, N.S.....	1951	20.0	Fortress constructed in 1820's and in 1850's. Museum.
Port Royal.....	Port Royal, N.S., 8 miles from Annapolis Royal.	1940	20.5	Reconstruction of "Habitation"—first fort built in 1605 by Champlain and DeMonts.
Alexander Graham Bell	Baddeck, N.S.....	2	21.0	Museum containing mechanical and documentary records of research by the inventor.
Grand Pré.....	Grand Pré, N.S.....	1957	20.0	Commemorates the story of the Acadians and the New England Planters. Museum.
Fort Beauséjour.....	New Brunswick, near Sackville.	1926	93.0	Site of French fort erected in mid-1700's. Museum.
Fort Chambly.....	Chambly, Que.....	1940	2.5	Fort built by English in 1709-11. Museum.
Fort Lennox.....	Île aux Noix, Que., near St. Paul.	1940	210.0	Fort built by English in 1820's.
Fort Malden.....	Amherstburg, Ont.....	1940	10.0	Site of defence post built in 1797-99. Museums.
Fort Wellington.....	Prescott, Ont.....	1940	12.0	Military garrison 1812-66.
Woodside.....	Kitchener, Ont.....	1954	12.0	Boyhood home of the Rt. Hon. William Lyon Mackenzie King, former Prime Minister of Canada.
Fort Prince of Wales...	Northern Manitoba, near Churchill.	1940	50.0	Ruins of fort built 1733-71 to secure control of Hudson Bay for England.
Lower Fort Garry.....	Manitoba, 20 miles north of Winnipeg.	1951	13.0	Stone-walled fort built by the Hudson's Bay Company between 1831 and 1839.
Fort Battleford.....	Saskatchewan, 4 miles south of North Battle- ford.	1951	36.7	North West Mounted Police post built in 1876. Museum.
Fort Langley.....	Fort Langley, B.C.....	2	11.0	Partially restored trading post founded 1827. Colony of British Columbia proclaimed here 1858.
Fort Rodd Hill.....	Esquimalt, B.C.....	1962	44.4	Extensive 19th century stone and concrete coastal fortifications.
Major National Historic Sites				
George Island.....	Halifax, N.S.....	2	12.5	Preserved harbour fortifications built in 1870's.
York Redoubt.....	Halifax, N.S.....	2	187.5	Perimeter Harbour Defence 1778-1945.
Fort Gaspereau.....	Near Port Elgin, N.B.....	2	2.0	Site of 1751 French Fort.
St. Andrews Blockhouse	St. Andrews, N.B.....	1938	2.5	Built during War of 1812.

For footnote, see end of table.

2.—Location, Year Established, Area and Characteristics of National Parks and of National Historic Parks and Sites—concluded

Park	Location	Year Estab- lished	Area	Characteristics
			acres	
Major National Historic Sites—concluded				
Martello Tower.....	Lancaster, N.B.....	1924	0.8	Harbour defence built during War of 1812.
Sir Wilfrid Laurier's Birthplace.....	St. Lin, Que.....	1941	0.5	Period restoration relating to early life of a famous Prime Minister.
Cartier-Brébeuf Park.....	Quebec, Que.....	2	5.0	Park, possible wintering site of Jacques Cartier, 1535-36.
Old walls around City of Quebec.....	Quebec, Que.....	..	...	Former Quebec City fortifications.
Fort Coteau.....	Coteau du Lac, Que.....	2	9.5	Site of fort built in 1779.
Bellevue.....	Kingston, Ont.....	1964	1.2	House lived in by Sir John A. Macdonald about 1848.
Fort St. Joseph.....	St. Joseph's Island near Sault Ste. Marie, Ont.	2	47.0	Most westerly British fort, built in 1796.
Batoche Rectory.....	Near Duck Lake, Sask....	1954	7.0	On field of final battle of Northwest Rebellion, 1885. Only surviving building of that date.
Fish Creek Memorial Park.....	Near Rosthern, Sask.....	..	39.0	Commemorates Northwest Rebellion battle of 1885.
Palace Grand Theatre.	Dawson, Y.T.....	1959	--	Reconstruction of theatre of Gold Rush days.
S.S. Keno.....	Dawson, Y.T.....	1959	--	Preserved Yukon river-boat.
Yukon Sternwheeler....	Whitehorse, Y.T.....	1959	--	Yukon river-boat of 1930 period.

¹ Administered by the Northern Administration Branch, Department of Northern Affairs and National Resources. ² Not yet formally established.

Evidence of the increasing attraction of Canada's National Parks and National Historic Parks and Sites is the growing numbers of visitors as shown in Table 3.

3.—Visitors to National Parks and National Historic Parks and Sites, Years Ended Mar. 31, 1962-65

Park	1962	1963	1964	1965
	No.	No.	No.	No.
National Parks				
Terra Nova.....	29,710	29,915	55,926	66,180
Prince Edward Island.....	775,583	1,009,021	1,019,104	1,112,536
Cape Breton Highlands.....	371,686	451,911	615,133	624,942
Fundy.....	280,006	302,340	494,157	566,443
Georgian Bay Islands.....	14,230	19,126	18,052	8,371
Point Pelee.....	485,637	267,554	780,795	661,166
St. Lawrence Islands.....	86,150	75,239	77,368	67,109
Riding Mountain.....	642,931	654,251	693,316	681,313
Prince Albert.....	140,650	137,484	137,494	140,521
Banff.....	1,069,623	1,374,576	1,650,257	1,605,784
Elk Island.....	183,263	176,040	207,914	175,105
Jasper.....	346,493	292,987	468,579	480,102
Waterton Lakes.....	420,865	444,752	441,803	371,258
Glacier.....	10,213	345,961	752,512	705,150
Kootenay.....	470,562	541,485	567,291	548,515
Mount Revelstoke.....	64,901	428,572	768,417	706,015
Yoho.....	99,160	375,189	678,739	658,518
Wood Buffalo.....	..	..	..	..
Totals, National Parks.....	5,491,663	7,426,403	9,426,857	9,179,028

3.—Visitors to National Parks and National Historic Parks and Sites, Years Ended Mar. 31, 1962-65—concluded

Park	1962	1963	1964	1965
	No.	No.	No.	No.
National Historic Parks				
Signal Hill.....	137,600	238,538	195,208	241,242
Fort Amherst.....	1,452	1,764	3,851	9,513
Fort Anne.....	69,646	83,103	77,201	64,551
Fortress of Louisbourg.....	30,036	32,347	40,153	113,148
Halifax Citadel.....	229,677	243,609	192,286	213,212
Port Royal.....	20,922	31,579	35,947	39,265
Alexander Graham Bell.....	73,682	79,659	91,392	106,228
Grand Pré.....	47,392	47,871	63,395	64,194
Fort Beauséjour.....	43,543	51,454	43,346	49,427
Fort Chambly.....	62,533	71,053	85,569	91,493
Fort Lennox.....	32,890	24,959	27,943	20,423
Fort Malden.....	37,334	42,254	41,023	38,916
Fort Wellington.....	38,685	46,666	51,530	52,167
Woodside.....	7,797	10,738	12,564	11,699
Fort Prince of Wales.....	414	362	256	424
Lower Fort Garry.....	50,234	59,544	85,391	86,620
Fort Battleford.....	27,511	30,895	34,807	38,825
Fort Langley.....	104,961	98,560	105,139	116,723
Fort Rodd Hill.....	...	42,533	39,759	32,922
Totals, National Historic Parks.....	1,016,309	1,237,488	1,226,760	1,390,992
National Historic Sites¹				
Martello Tower.....				38,893
Sir Wilfrid Laurier's Birthplace.....	7,668	8,186	7,592	7,190
Batoche Rectory.....	15,641	15,350	7,069	7,855
Totals, National Historic Sites.....	23,309	23,536	14,661	53,938
Grand Totals.....	6,531,281	8,687,427	10,668,278	10,623,953

¹ Sites for which visitor data are available.

Subsection 2.—Provincial Parks

Most of the provincial governments of Canada have established parks within their boundaries. Some of these, particularly in Quebec and Ontario, are wilderness areas set aside in order that some portions of the country might be retained in their natural state without change brought about by the hand of man. Most of them, however, are smaller areas of exceptional scenic or other interest which are easily accessible and are equipped or slated for future development as recreational parks with camping and picnic facilities. The more important parks in each province are mentioned briefly in the following paragraphs.

Newfoundland.—There are 78.5 sq. miles of provincial parkland reservations in Newfoundland. Of the total area, 26 sq. miles are at present utilized for public recreation and the remaining 52.5 sq. miles are as yet undeveloped. The active parkland consists of three regional parks, each having an area of about 8 sq. miles, and 18 roadside parks with camping and picnicking facilities, each having an area of about 100 acres.

Prince Edward Island.—Eighteen areas totalling 250 acres have been developed as provincial parks: Strathgartney Park, a 40-acre tract of land at Churchill on the Trans-Canada Highway between Charlottetown and Borden, is an excellent picnic site and camping ground with its hardwood groves, fresh spring water and beautiful view over West River and the surrounding country; Lord Selkirk Park, an area of 30 acres at Eldon, is of historic interest in that it contains an old French cemetery and marks the spot on the shoreline where Lord Selkirk landed; Brudenell River Park, comprising 80 acres at Roseneath, has a considerable area of woodland and runs to the shore of the Brudenell River;

Jacques Cartier Park, an area of 13 acres under development at Kildare Beach four miles from Alberton, is of historic significance as the place where Jacques Cartier first landed on Prince Edward Island; Green Park, 27 acres of land under development on the Trout River, is an attractive combination of land, trees and water and is also of interest as a historic shipbuilding centre. Several small parks have been developed or are under development. The parks are maintained by the Department of Tourist Development. A fee of \$1 a night is charged for trailer space and of 75 cents a night for tent space in all provincial parks.

Nova Scotia.—A master plan has been prepared of theoretically desirable park locations in Nova Scotia, taking into consideration the need for roadside facilities, regional picnic parks and camping grounds. Geographic location, population density, volume of traffic and aesthetic features are being evaluated for each site. Roadside table sites, formerly administered by the Department of Highways, are being incorporated into this provincial scheme and will be operated according to provincial park standards. Many of the existing sites will be retained and improved, some will be retained on a temporary basis only and unsuitable sites will be discontinued. The provincial parks program will require about ten years of development work for completion.

In 1965, the Department of Lands and Forests anticipates that 10 camping and picnic parks, 27 picnic parks and 23 roadside table sites will be in operation throughout the province.

New Brunswick.—The Department of Lands and Mines is responsible for the development of the Provincial Parks System, which includes 15 regional park sites ranging in size from 25 to 200 acres, 17 picnic campsites and 23 roadside picnic sites. All picnic and camping grounds contain tables, some form of toilet facility and a potable water supply but more elaborate facilities are available in the larger parks. Many of the regional park sites are associated with beach developments. Most sites are adjacent to or easily accessible from main trunk roads. No entrance fee is charged at any of the sites, but a daily camping fee of \$1.00 to \$1.50 is in effect at 16 of the larger parks and campsites.

The Department maintains a Game Farm at Magnetic Hill near Moncton where various species of wildlife to be found in the province are displayed.

Quebec.—The Province of Quebec has established six provincial parks and 16 fish and game reserves. Four of the park areas are quite extensive. La Vérendrye Park, 140 miles northwest of Montreal, has an area of 4,953 sq. miles; Laurentide Park, 30 miles north of Quebec City, is 3,613 sq. miles in extent; Mont Tremblant Park, 80 miles north of Montreal, 1,223 sq. miles; and Gaspesian Park, in the Gaspé Peninsula, 514 sq. miles. Mont Orford Park, situated 15 miles west of Sherbrooke, has an area of 16 sq. miles and Oka Provincial Park near Oka, 1.5 sq. miles.

Fish and Game Reserves together occupy 41,166 sq. miles.* The Chibougamau Reserve, the Mistassini Reserve and the Assinica Reserve, all northwest of Lake St. John, have areas of 3,400, 5,200 and 3,850 sq. miles, respectively, and farther north is the James Bay Reserve with an area of 25,000 sq. miles. The Aiguebelle Reserve in Abitibi County has an area of 100 sq. miles, the Baie Comeau and Chicoutimi Reserves in the Lake St. John area, 480 and 678 sq. miles, respectively, and the Kipawa Reserve in Témiscamingue County, 1,000 sq. miles. Adjoining Gaspesian Park in the Gaspé Peninsula, the Chic-Chocs, Matane and Joffre Reserves have, respectively, 325, 450 and 40 sq. miles. Also in Gaspé Peninsula are the Port Daniel, Rivière St. Jean and Rivière Petite Cascapédia Reserves for salmon and trout fishing, occupying 20, 13 and 300 sq. miles, respectively. Horton Reserve in Rimouski County has an area of 310 sq. miles.

*Excluded are the 16,000 sq. miles of the Mingan Reserve, no longer operated by the Department of Tourism, Game and Fish as a reserve.

These parks and reserves are wilderness areas of great scenic interest and are for the most part mountainous country threaded with many rivers, lakes and streams and abounding in wildlife. In all of them, except Mont Orford Park and Oka Provincial Park, excellent fishing may be found and most of them have been organized to accommodate sportsmen and tourists in camps, cottages and lodges. Mont Tremblant Park, located close to a famous year-round recreational area, is easily reached in summer by highway from Montreal and is very popular for tent or trailer camping and for swimming and picnicking. Mont Orford has an 18-hole golf course and, in winter, is the rendezvous of Canadian and United States skiers and the site of the Canadian Alpine downhill and slalom championship competitions. Hunting is forbidden in the parks and reserves, except Horton, Joffre, Kipawa and James Bay. In recent years, controlled moose hunting in Laurentide, La Vérendrye and Matane Parks has been allowed to remove the surplus.

In addition to these large parks, the Province of Quebec is in process of establishing a network of roadside parks. It is estimated that \$4,000,000 will be spent for this purpose during the fiscal year 1965-66.

Ontario.—The development of provincial parklands in Ontario continues at a rapid rate. Ten years ago there were 10 provincial parks in the province and today there are 90 such parks available for public use. Several new parks are in process of development and 54 other areas are reserved for future development. The total area in the Ontario Provincial Parks system is about 5,800 sq. miles.

The four largest provincial parks—Algonquin, Quetico, Lake Superior and Sibley—together have an area of about 5,200 sq. miles. Algonquin, 180 miles north of Toronto and 105 miles west of Ottawa, has several campgrounds which are accessible by car from Highway 60 and its numerous waterways may be traversed and enjoyed by canoe. Quetico Park is accessible by road at the Dawson Trail Campground on French Lake, and also by water via Basswood Lake in the south. Highway 17 north from Sault Ste. Marie provides access to Lake Superior Park, and Sibley Park may be reached by road from Highway 17 east from Port Arthur. Under the Wilderness Areas Act, which came into effect in 1959, 38 areas have been established. These tracts of land, widely distributed across the province, vary in size, character and significance but all are regarded as important for their historic, scientific, aesthetic or cultural values. The largest is a 225-sq. mile area of treeless tundra in the northeastern tip of the province, jutting out at the base of Hudson Bay where it meets James Bay. The second largest is a 220-sq. mile block covering the Puckasaw River valley between Wawa and Marathon on the north shore of Lake Superior. All the other areas are small and none exceeds 640 acres.

Ontario's vast lakeland areas make this province a vacation paradise and the number of park visitors increases year by year. Attendance reached an all-time high of 9,139,975 in 1964 and campers numbered 927,632. Charges for vehicle entry are \$1.00 a day or \$5.00 a year and camping charges are \$1.50 a night or \$9.00 a week. At supervised tent and trailer campsites, picnic tables, fireplaces, tested drinking water and washrooms are provided. Campsites, which are being added to at the rate of 500 to 2,000 a year, numbered 15,000 across the province in 1964 and in that year about 326,000 permits were issued for the use of them. Adding interest to the visitor's stay in provincial parks are the Naturalist Service and Interpretative Programs which include nature museums, outdoor exhibits, conducted trips, illustrated talks and labelled nature trails. Interpretative programs were conducted at 16 parks in 1964.

The parklands of Ontario are administered by the Parks Branch of the Department of Lands and Forests. Detailed information is contained in the booklet *Ontario Campsites, Roadside Parks and Recreation Areas*, issued by the Department of Tourism and Information, Parliament Buildings, Toronto.

Manitoba.—There are nine provincial parks in Manitoba with a total area of 2,854 sq. miles, of which 1,945 sq. miles are also within forest reserves. In addition, there are 40 provincial recreation areas which range in size from 2.5 acres to 2,000 acres and comprise a total area of 4,827.5 acres or 7.5 sq. miles. Along the main highways, 89 roadside parks

have been established; 48 of these are public campgrounds and the others are designed for picnic lunches and short rests for motor travellers. The park and recreation areas are administered by the Parks Branch of the Department of Mines and Natural Resources. There are 5,177 sq. miles designated and operated as forest reserves and in many cases forest reserve and provincial parklands are one and the same. Forest reserves are operated and managed by the Forest Management Branch and are protected by the Forest Protection Branch of the Department of Mines and Natural Resources.

Saskatchewan.—Saskatchewan has 14 Provincial Parks with a total area of 2,344 sq. miles. Cypress Hills, Duck Mountain, Greenwater Lake and Moose Mountain are operated as summer resorts with chalet, lodge, cabin and trailer accommodation as well as camp and picnic facilities. The other parks have trailer sites and camping, picnicking, boating and swimming facilities. Recreational activities include fishing, boating, swimming, golf, tennis, dancing, baseball, hiking, nature study, horseback riding, etc., and the parks are all well fitted with playground and beach equipment for children. In Cypress Hills Park, elk, antelope, deer, sharp-tailed grouse and beaver are present, and the streams have been stocked with brook and other trout. Heavy stands of tall, straight lodgepole-pine and white spruce provide a unique forest cover in this area. In Duck Mountain, Moose Mountain and Greenwater Lake Parks, moose, elk and bear appear variously, and deer and beaver are common to all, as well as several varieties of grouse and many species of water and smaller land birds. Spruce, poplar and white birch provide excellent cover for wildlife. Pickerel, pike and perch are prevalent in most of the lakes. Lake trout are ardently sought by fishermen in the northern lakes. Three wilderness parks—La Ronge, Nipawin and Meadow Lake—offer wilderness-style canoe routes and 'fly-in' commercially operated fishing and hunting camps. Many roadside picnic grounds are located throughout the province and several excellent Trans-Canada Highway campsites are in use.

Sites of historic interest are marked throughout the province and include the Touchwood Hills Hudson's Bay Post, where picnic facilities are available.

Alberta.—In Alberta, 42 provincial parks have been established, 39 of which, with a total area of approximately 168 sq. miles, are under development. Cypress Hills Provincial Park with an area of 78 sq. miles is the largest and is situated in the southeast portion of the province. Other parks under development are: Aspen Beach, Beauvais Lake, Big Hill Springs, Big Island, Big Knife, Bow Valley, Bragg Creek, Crimson Lake, Cross Lake, Dillberry Lake, Dinosaur, Entrance, Garner Lake, Gooseberry Lake, Hommy, Kinbrook Island, Lac Cardinal, Little Bow, Little Fish Lake, Long Lake, Ma-Me-O Beach, Miquelon Lake, Moonshine Lake, O'Brien, Park Lake, Pembina River, Red Lodge, Rochon Sands, Saskatoon Island, Taber, Thunder Lake, The Vermilion, Wabamun Lake, Williamson, Willow Creek, Winagami Lake, Woolford and Writing-on-Stone. These parks are generally provided with picnic, camping and playground facilities and are maintained by the Department of Lands and Forests primarily for the recreation and enjoyment of the residents of the province. There is a park within easy reach of almost every town. The most northerly park is Lac Cardinal, about 28 miles southwest of Peace River, and the southernmost park is Writing-on-Stone which adjoins the Alberta-Montana border. Alberta's provincial parks were visited by 2,102,000 tourists and vacationists in 1964.

In addition to the recreational parks, 21 sites have been established to mark and preserve locations of historic interest. They include: Athabasca Landing, Buckingham House, Coronation Boundary Marker, Early Man Site, Fort DeL'Isle, Fort George, Fort Vermilion, Fort Victoria, Fort White Earth, Frog Lake Massacre, Hay Lakes Telegraph Station, Massacre Butte, Ribstones, Standoff, Stephansson, Twelve Foot Davis, Shaw Woolen Mill, Rev. George McDougall's Death Site, Fort McLeod, Indian Stone Pile and St. Joseph Industrial School.

Provided also for Albertans are the Wilderness Provincial Park, which adjoins Jasper National Park in the north and extends along the British Columbia border, and two wilderness areas established under the Forest Reserves Act in 1961. The Wilderness Provincial Park has an area of 2,149 sq. miles, Siffleur Wilderness 159 sq. miles and White

Goat Wilderness 489 sq. miles. These areas have been set aside to preserve as far as possible the natural scene and are not subject to any development or provided with roads.

British Columbia.—There are 227 (170 developed) provincial parks in British Columbia with a total area of about 9,992 sq. miles. These parks are classified as A, B and C. Class A parks are reserved solely for recreational purposes; some are highly developed and others are wilderness areas. Class B parks are set aside primarily for recreation, but regulations permit other natural resource use where this is not in conflict with recreation. Class C parks are administered in detail by a Parks Board of local citizens, under the over-all jurisdiction of the Minister of the Department of Recreation and Conservation. British Columbia parks are in many stages of development and dedicated to a variety of recreational uses. There are immense wilderness areas such as Tweedsmuir Park and Wells Gray Park. Outstanding scenic and mountain reserves include Garibaldi, Mount Robson, Manning and Bowron Lakes Parks. The formal gardens of Peace Arch Park are a monument to the goodwill between Canada and the United States. Vancouver Island has a chain of small forested parks that have achieved tremendous popularity with tourists—the best known are Little Qualicum Falls, Miracle Beach and Goldstream. The famous gold town of Barkerville has been restored to become the first Provincial Historic Park. Eight marine parks with mooring facilities and campsites have been developed on the islands of the Straits of Georgia for the benefit of water-borne vacationists. The popularity of the province's parks, with their integrated campsites and picnic areas, is attested by the fact that about 4,000,000 persons visited them during 1963; about one quarter of the visitors were campers and the remainder day visitors. Records show that Mount Seymour, Cultus Lake and Alouette Lake Parks were the most popular.

Subsection 3.—Canada's National Capital*

Ottawa, the city selected by Queen Victoria in 1857 to be the seat of government for the Province of Canada in British North America, was designated the National Capital upon Confederation on July 1, 1867. The community had grown out of the military and construction camp that served as headquarters for the building of the Rideau Canal, a project carried out between 1826 and 1832 to establish a safe navigable waterway between Lake Ontario and the Ottawa River. The building of the Canal was the crowning achievement in the life of a distinguished British military engineer, Lieutenant-Colonel John By, R.E., who gave his name to the new settlement inhabited mainly by stone-masons and discharged soldiers. As time passed, Bytown prospered as a timber centre and was incorporated as a town in 1847. Then, on Dec. 18, 1854, the name of Bytown was changed to Ottawa and under that name the community was incorporated as a city on Jan. 1, 1855.

The city, situated in an area of great natural beauty and surrounded by waterways, has remained a self-governing municipality and, although throughout the years the Federal Government co-operated with the municipal authorities in the development of a system of driveways and parks, the city expanded without the benefit of a comprehensive plan. However, in 1950 a Master Plan was presented to the Government of Canada, designed to guide the development of the Capital's urban area over the following half-century and to protect the beauty of the surrounding National Capital Region. This Region originally covered 900 sq. miles but was increased in 1959 to 1,800 sq. miles—half in the Province of Ontario and half in the Province of Quebec. Although the successful implementation of the Plan is dependent upon the co-operation of the cities of Ottawa, Hull and Eastview and of about sixty other autonomous municipalities and the two provincial governments involved, the National Capital Plan is not officially recognized by the Governments of Ontario and Quebec.

The federal agency responsible for the planning of Canada's Capital is the National Capital Commission, created in 1959 to replace the Federal District Commission which, in turn, was the lineal descendant of the Ottawa Improvement Commission. The National

* Prepared in the Information and Historical Division, National Capital Commission, Ottawa.

Capital Commission, which reports to Parliament through the Minister of Public Works, is composed of twenty members appointed by the Governor in Council and representing each of Canada's ten provinces. It is headed by a chairman and a general manager and has a personnel of over 700, although this number fluctuates because of the seasonal character of a large part of the work involved. Six committees give advice and direction to the Commission: the *Executive Committee* consists of the chairman and vice-chairman of the Commission and three other members appointed by the Commission, one of whom is from the Province of Quebec; the *Land Committee*, composed of several experts in land evaluation, advises the Commission on matters of land purchases and property administration; the *Advisory Committee on Design*, comprising prominent Canadian architects, town planners and landscape architects, gives advice on the external appearance of government buildings, locations, site plans and landscape designs; the *Historical Advisory Committee* advises the Commission on matters of preservation, marking and interpretation of buildings and sites having historical significance within the National Capital Region; the *Information Advisory Committee* studies and considers the publicity and public relations programs of the Commission; and the *Gatineau Park Advisory Committee* is concerned with the administration and development of Gatineau Park.

The National Capital Plan, as conceived by the eminent French town planner, the late Jacques Gréber, was dedicated to those who gave their lives for Canada during the Second World War and has since constituted the Commission's planning guide for the Capital of Canada. In accordance with the first proposal of the Master Plan, the principle of "open space" is being applied, a policy beneficial to both residents and visitors. Part of this policy involves the restoration to their natural beauty of the shores of the waterways in and around Ottawa, a program evident in the work of the Commission at Rideau Falls Park opposite the City Hall and in the development of Vincent Massey Park in the heart of the city; the latter is a 75-acre park and playground extension to 50-acre Hog's Back Park at the foot of Hog's Back Falls. The Commission owns 40 miles of riverfront property in the National Capital and makes these attractive areas accessible to the public. On the Quebec side of the Ottawa River the Commission maintains two parks—the historically interesting Brébeuf Park and Jacques Cartier Park, both on the shores of the Ottawa River. There are at present 40 miles of wide landscaped roadways in Ottawa and Hull, and 30 miles of right-of-way have been acquired for future expansion. The Commission cares for the landscaping of 13 municipal parks in Ottawa-Hull, of which Strathcona Park in Sandy Hill district and Rockcliffe Park are the most extensive and attractive. The acquisition of land along both shores of the Ottawa and Rideau Rivers and the exceptionally wide rights-of-way for parkways have given Ottawa about 4,000 acres of open space.

The program of planned location of new government buildings has been under way for some time and excellent examples of planned sites for government structures now exist at Confederation Heights, at Tunney's Pasture and at the Printing Bureau site in Hull. Other areas, such as the large tract of already serviced land at Pincrest, are awaiting development. The grounds of more than 140 government buildings in the National Capital Region are cared for by the Commission, which also gives assistance to municipal projects that enhance the attractiveness of the area, such as the provision of land and landscaping for the 10-mile Queensway being built under a four-way partnership between the Federal Government, the National Capital Commission, the Province of Ontario and the City of Ottawa.

An important proposal of the Master Plan calls for the establishment of a Greenbelt around the National Capital, one of the main objectives of which is to restrain the tentacular and uneconomical growth of the city. There is also the aesthetic consideration that this belt of green open space and planned building sites will provide the beautified Capital with suitable approaches. The present semicircular Greenbelt on the Ontario side occupies some 41,000 acres of land and surrounds, to a depth of about two and one half miles, the urban zone at an average distance of nine miles from the Peace Tower. The Commission encourages agricultural activity within this area and at the same time reserves within its

boundaries certain tracts of land to be occupied by government buildings, public institutions and some types of industrial development such as research and experimentation establishments requiring considerable space to operate. There are many other factors that help make the NCC Greenbelt an ideal planning measure: it is an incentive for better urban land use and it favours the development of satellite communities in the National Capital Region.

The Commission has under way the large-scale program advocated in the Master Plan of removing railway trackage and yards from the urban area with the co-operation of the railway companies. The abandoned rights-of-way are destined to become roadways which will relieve traffic bottlenecks within the heart of the city; the Queensway, still under construction, runs on a former railway bed. This program, which is expected to be completed by 1967, involves the removal of 32 miles of track, the elimination of 72 railway crossings and the consequent acquisition of 449 acres of high-value land for redevelopment. The removal of most of the railway lines from the central parts of the Capital will allow the Commission as the agent of the Federal Government to redevelop key areas such as LeBreton Flats, the present Union Station sector and parts of Sussex Drive near the approaches to the new Macdonald-Cartier bridge.

The Master Plan also includes the establishment and development of the beautiful and impressive Gatineau Park, a 75,000-acre forest and lake area in the shape of a triangle stretching from its apex in the city of Hull northward for 35 miles into the Laurentian Hills. The National Capital Commission owns more than 64,000 acres of the projected area and the acquisition of private holdings is continuing. The 22 miles of parkway now traversing this area are to be extended deeper into the wilderness. Camping and picnic sites are being improved by the installation of drinking fountains, barbecues and outdoor ovens, and well-designed restrooms, and by the addition of fishing and swimming facilities. At Lac Philippe and Lac Lapêche, two of the four big lakes in Gatineau Park, the Commission has developed or is planning large-scale public recreation facilities with easy road access.

In addition to these major development projects, the National Capital Commission, through its Historical Advisory Committee, plans to conserve and mark historic buildings and sites as mementoes of the past. Such sites are carefully studied and their preservation and suitable identification is an important part of the over-all program.

Planning aid to municipalities in the National Capital Region is given in the form of grants in special circumstances and advice on establishing areas of subdivision control, preparation of basic plans and maps, master plans for communities and zoning legislation. This advice is available upon request and the Commission, having no planning powers, must seek to persuade rather than impose its proposals.

Estimated expenditures for Commission projects in the year ended Mar. 31, 1965 totalled \$29,217,000, which included \$7,111,000 for administration, operation and maintenance and \$22,106,000 for capital projects and assistance to municipalities.

Section 2.—Wildlife Resources and Conservation*

Wildlife in Canada is an important renewable natural resource. In the early days, wildlife was, and in large areas still is, a form of sustenance in the hinterland, and trade in fur determined the course of exploration and settlement. During the period of the opening up of the country, a number of mammals and birds became seriously depleted or completely extinct. The passenger pigeon, the great auk and the Labrador duck were extirpated, the buffalo vanished from the prairies, and wapiti, prong horn antelope and muskoxen were reduced to small fractions of their former numbers. The destruction was not limited to birds and mammals but in areas of settlement their habitat was reduced by the cutting and burning of the forests, the diversion and pollution of streams and other changes in the land.

* A series of special articles relating to the wildlife resources of Canada has been carried in previous editions of the Year Book. See the list of special articles in Chapter XXVII, Part II, under the heading of "Fauna and Flora".

Since then it may be said that wildlife has been changed and influenced by man to the degree that he has changed and influenced the environment for wildlife. The Arctic and alpine tundra, one of Canada's major vegetational regions, has been changed hardly at all: the adjacent subarctic and subalpine non-commercial forests have been changed principally as a result of increased human travel causing more forest fires; the great forest farther south has not lost its real character through being managed for commercial use; cultivable lands, whether originally forest or grassland, have completely changed, but often they and the managed forest are better for many forms of wildlife than the original wilderness. Some creatures thrive on change. There are more moose, deer, ruffed grouse and probably more coyotes than in Indian days. Fur species, such as beaver and muskrat, are easily managed and many small mammals and birds thrive better in fields and woodlots than in the virgin forests, provided that they are not poisoned by pesticides. At the present time, the harvestable surplus of game and fur species across Canada is seldom fully utilized and it is quite clear that wildlife will remain abundant wherever there is suitable habitat and enlightened management.

Thus, Canada today is known throughout the world for the wealth and variety of its wildlife. It maintains most or all the existing stocks of woodland caribou, mountain sheep, wolves, grizzly bears and wolverines, to mention a few. And these animals exist not only because of the vastness of their habitat but also because of man's efforts to preserve them. There is evidence of concern about the preservation of wildlife by the early Canadians; there were game laws in force in the original provinces when all but a few thousand acres of land were still the patrimony of the Indians. In 1885 pioneer conservationists were instrumental in establishing Banff Park in Alberta and in 1887 a bird sanctuary, the first on the Continent, was established at Last Mountain Lake in Saskatchewan. The same fervour for preservation of Canada's wildlife heritage led to the complete protection of wood bison in 1893 and to the purchase and establishment of a nucleus herd of plains bison at Wainwright in Alberta in 1907. Thus was formed the basis of wildlife conservation efforts, which, for a long time, took the form of protection of certain species from destruction by man or predator. Better knowledge of nature's operations and the recognition of the fact that many other factors combine to cause fluctuation in wildlife numbers are now being reflected in a loosening of restrictions on hunting and a rescinding of preserves. The science of animal numbers is new and sometimes runs counter to popular prejudice but it is well understood that any area will support only so many animals, and species that are highly productive must have a quick turnover. Wildlife must never be separated from the consideration of its environment and if the environment is fully stocked the annual increment need only replace the losses. All extra is surplus, only part of which is taken by predators and part, if the animal is a game species, by man.

As a natural resource, wildlife within the provinces comes under the administration of the respective provincial governments; wildlife on federal lands and certain problems of national or international interest are the concern of the Federal Government.

The Canadian Wildlife Service.—The Canadian Wildlife Service deals with most wildlife problems coming within the jurisdiction of the Federal Government. It was organized in 1947 to meet the growing need for scientific research in wildlife management and is a division of the Natural and Historic Resources Branch of the Department of Northern Affairs and National Resources. The Service conducts scientific research into wildlife problems in the Northwest Territories, Yukon Territory and the National Parks, advises the administrative agencies concerned on wildlife management, and co-operates in the application of such advice. It administers the Migratory Birds Convention Act, provides co-ordination and advice in connection with the administration of the Game Export Act in the provinces, deals with national and international problems relating to wildlife resources, and co-operates with other agencies having similar interests and problems in Canada and elsewhere.

The Migratory Birds Convention Act was passed in 1917 to give effect to the Migratory Birds Treaty signed at Washington in 1916. It provides a measure of protection for

numerous species of birds that migrate between the two countries. The Canadian Wildlife Service, in its capacity as administrator of the Act, is responsible for recommending the annual revision of the Migratory Bird Regulations, which govern such matters as open seasons and other waterfowl hunting details, taking and possessing migratory birds for scientific or propagating purposes, eiderdown collecting, etc. The Act and Regulations thereunder are enforced by the Royal Canadian Mounted Police and in both administration and enforcement co-operation is received from provincial authorities. There are 107 migratory bird sanctuaries in Canada, having a total area of 43,887 sq. miles. A sanctuary may be established on the initiative of the Department of Northern Affairs and National Resources or of a provincial or municipal government, or on petition by a private person or organization. Bird banding provides valuable information on the migration of birds and their natural history and is especially useful in waterfowl management. Serially numbered bands supplied by the United States Bureau of Sport Fisheries and Wildlife are used in Canada as well as in the United States.

Many research projects under way were continued during 1964. These included the study, in co-operation with the governments of Manitoba and Saskatchewan and the Council of the Northwest Territories, of barren-ground caribou and of wolves that prey upon caribou. Human utilization is still the most important factor in herd reduction but other significant factors include effects of forest fires on winter range, predation, accidents and poor calf survival. Studies were continued on mink, muskrat and beaver in the Mackenzie District, and of polar bear and Arctic fox in Keewatin and Franklin Districts. Big game mammals in the National Parks were also the object of continued study, special attention being given to mountain sheep and wapiti in the mountain parks of Alberta where large populations of those species facilitate investigations. In Wood Buffalo Park, investigations into the problems of disease and low reproductive rates among bison were continued as a long-term project in the hope that some control of each might be achieved.

Damage to cereal crops by wild ducks and sandhill cranes continued to receive intensive study and much time was devoted to other species greatly reduced in number or in danger of extinction, such as the Ross' goose, trumpeter swan, and whooping crane. Nation-wide investigations of migratory waterfowl included kill surveys conducted in Prince Edward Island, New Brunswick, Quebec and Ontario and a crop-damage survey in Saskatchewan. Arctic bird-banding programs were continued, as were pilot programs of wetlands leasing. The loss of wetlands to drainage and filling for agricultural and other purposes poses a serious threat to the waterfowl resource.

At the end of 1964 the research staff included 44 wildlife biologists stationed at various centres throughout Canada. Staff specialists covering mammalogy, limnology, migratory bird populations, migratory bird habitat, ARDA, and pesticides, were stationed in Ottawa. Ornithologists were located at Vancouver, B.C., Edmonton, Alta., Saskatoon, Sask., Winnipeg, Man., Ottawa and Aurora, Ont., Quebec, Que., Sackville, N.B., and St. John's, Nfld. Mammalogists were stationed in the Northwest Territories at Fort Smith and Inuvik, at Whitehorse in the Yukon Territory, and at Edmonton, Sackville and Ottawa. A limnologist was located at Jasper and a range specialist and two pathologists at Edmonton and Ottawa, respectively. A number of university graduates and undergraduates are engaged annually to assist in summer field work. Ottawa headquarters has an administrative staff of about 30 in addition to supervisory research officers.

Provincial Government Wildlife Conservation Measures.—As stated previously, each province has jurisdiction over its own wildlife resources. The measures adopted by the respective provincial governments to conserve these resources are outlined in the 1963-64 Year Book at pp. 46-52. The conservation of wild fur-bearing animals in the different provinces is discussed in the Fisheries and Furs Chapter, Part II, and information on provincial conservation of fisheries resources is given in Part I of the same Chapter, together with data relating to the work of the Fisheries Research Board of Canada and to international fisheries conservation (see Index).

THE FLORA OF CANADA*

An earlier general description of the flora of Canada was prepared for the 1938 Year Book by John Adams (1938) and revised in 1945 by Harold A. Senn. This account noted descriptive works on the Canadian flora prior to 1945 and gave an excellent summary of the factors affecting plant life under the headings of climate (temperature, precipitation, light, wind and altitude) and environment (ecological relationships and groups, exotic and weed flora). It also included a large section on the classification of the flora, noting the status at that date of Canadian cryptogams (ferns and fern allies, mosses, liverworts, lichens, fungi, and freshwater and marine algae) and phanerogams (flowering plants, made up of gymnosperms and angiosperms), and discussing the various floral regions of Canada as illustrated by the ferns and flowering plants. Reference may also be made to the paper by Adams (1926) entitled *A Survey of Canadian Plants in Relation to their Environment*.

This article will again present an account of the various Floral Regions but, rather than repeat much of the remaining easily available information, will concern itself chiefly with advances in Canadian botany since 1945 in an endeavour to present a broad view of the problems with which Canadian botanists are concerned.

Plant-collecting ranks with bird-watching as one of the most popular activities of amateurs in the field of natural history, and science has benefited greatly from the fact that the amateur collector has often reported his findings in the literature, perhaps as a checklist covering a certain region, or has donated his material (or duplicates) to be incorporated into the collections of large institutions where it is available for study.

The beauty of flowers provides the initial stimulus for collecting plants, and the relative ease with which plants may be collected and preserved and the small space required for their storage contribute to the popularity of the hobby. The methods of collecting and preserving botanical specimens are described in general by Gleason (1958), Porsild (1957), and in more detail by Savile (1962).

Latin names present an obstacle, but only at the beginning. They actually simplify working with plants because of the precision with which they are applied to distinct forms. Many different plants are known by the same vernacular or 'common' name in different parts of the country, and many plants also have several common names, often making it impossible to pinpoint accurately the species to which one is referring. The 'binomial' Latin name also gives some information as to the relationships of the plant. The Rose Family (*Rosaceae*), for example, is made up of several groups (genera), each of which usually contains several species obviously more closely related to one another than to members of the other groups. One of these groups constitutes the genus *Rosa*. One of the members of this group is distinguished from other 'roses' by its thick, roughly veined (rugose) leaves, and is known as the species *Rosa rugosa*. Another group of the Rose Family unites the cinquefoils or five-fingers in the genus *Potentilla*, but these are all so different from any species of *Rosa* that they obviously justify being placed in a separate major subdivision.

Floral Regions of Canada

In a country the size of Canada, several different floral regions are to be expected as a result of climatic and topographical differences, diverse soils and past history (submergence of the land, glaciation, land-bridges, etc.). Some idea of the complexity of the Floral Regions may be obtained by reference to Sheet 38 of the *Atlas of Canada* (1957), which shows the major regions further subdivided on the basis of their "natural vegetation". Because the regions of natural vegetation are based largely upon their dominant trees, there is a striking similarity between this vegetation map and the accompanying map. Four of the Floral Regions are dealt with in this article under the names used for the corresponding Forest Regions: the Boreal, Acadian, Great Lakes St. Lawrence, and Deciduous (Carolinian) Forest Regions. The titles used for the other Floral Regions are: Prairie

* Prepared by Homer J. Scoggan, Ph.D. (McGill), National Museum of Canada, Natural History Branch, Department of the Secretary of State, Ottawa. Bibliographical references (chiefly since 1945) are listed alphabetically by authors in the Bibliography at pp. 59-61.

Grasslands and Parklands Floral Region, Western Floral Region, and Arctic Barren Grounds Floral Region. The Western Floral Region comprises the area covered by the Subalpine, Columbia, Montane, and Coast Forest Regions. A larger scale map showing the Forest Regions in more detail, prepared in 1956 and reprinted in 1963, is available from the federal Department of Forestry.

Boreal Forest Floral Region

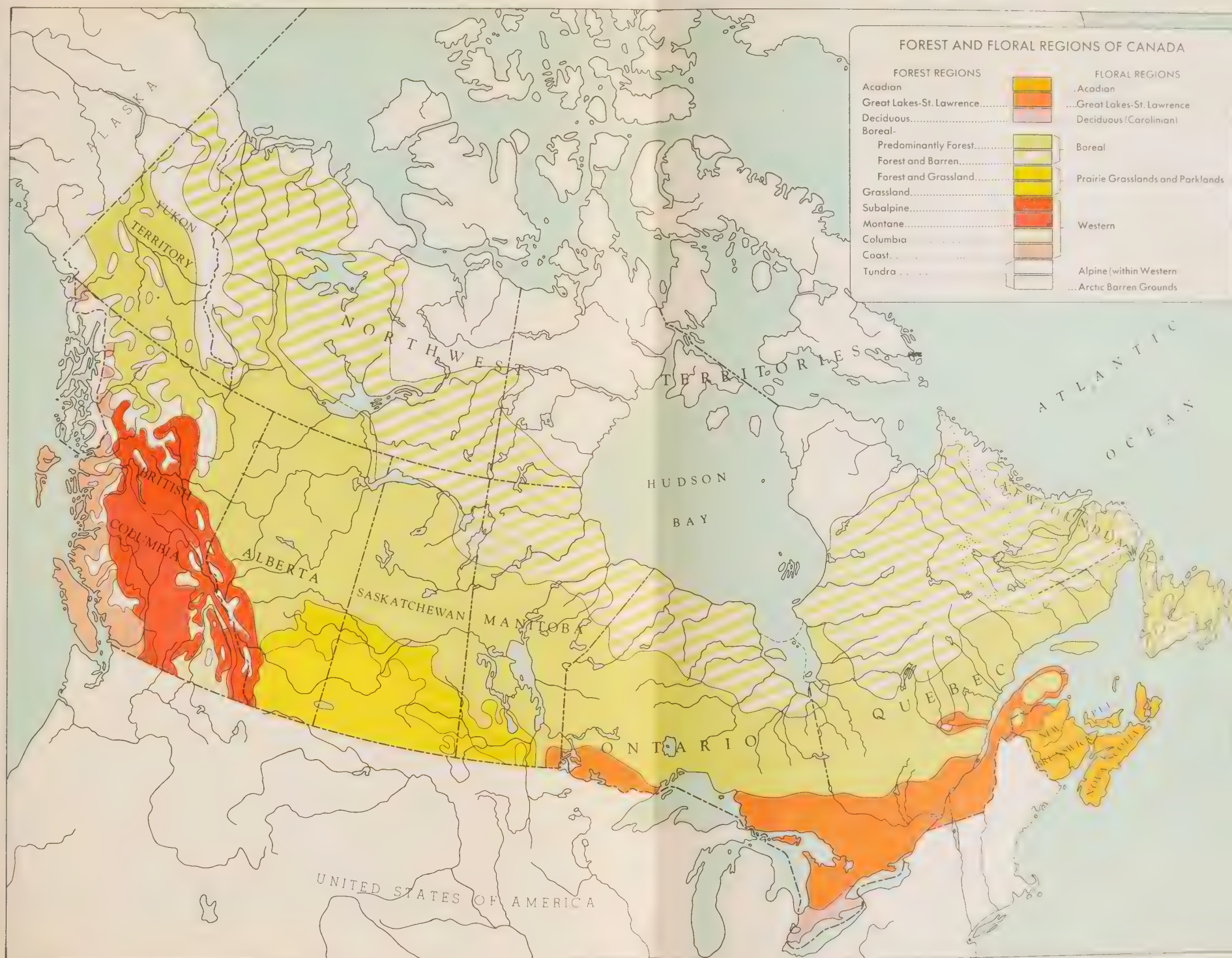
The great transcontinental coniferous forest occupies about three quarters of the area of continental Canada. It merges on the north into the Arctic Barren Grounds and on the south into the other Floral Regions. It reaches northward in the east only to the head of Ungava Bay but slopes steeply northwestward to reach the delta of the Mackenzie River. The cause of this slope is discussed under the heading "The Plant Environment" (see p. 49).

Except for southern British Columbia and the coastal and alpine regions of that province, the boreal forest extends from the Atlantic to the Pacific, its area being delimited by those of the dominant species, black spruce (*Picea mariana*) and white spruce (*P. glauca*—replaced in the west by the varieties *albertiana* and *porsildii*). White spruce favours upland sites, with aspen (*Populus tremuloides*) and paper-birch (*Betula papyrifera*) as common associates throughout nearly the whole area and balsam-fir and jack-pine throughout most of the southern half. Black spruce favours low-lying wet muskegs, where it is commonly associated throughout the area with tamarack (*Larix laricina*). Eastern white cedar (*Thuja occidentalis*), hemlock (*Tsuga canadensis*), white pine (*Pinus strobus*) and red pine (*P. resinosa*) occur in the southeastern section, the cedar being an indicator of calcareous habitats in a region largely underlain by the acidic granites and gneisses of the Canadian Shield. Choke-cherry (*Prunus virginiana*) and pin-cherry (*P. pensylvanica*) are common throughout the Region and mountain-maple (*Acer spicatum*) is common in the eastern half. The ground cover is usually sparse, even in relatively open areas, the thick layer of old, very slowly decaying 'needles' of past years providing little encouragement for seedlings to root. Shrubs and herbs are typically oxylophytic (acid-loving).

Characteristic shrubs of the Region include junipers (*Juniperus communis* and *J. horizontalis*), various currants and gooseberries (*Ribes*), shrubby cinquefoil (*Potentilla fruticosa*), buckthorn (*Rhamnus alnifolia*), buffalo-berry (*Shepherdia canadensis*), red-osier (*Cornus stolonifera*), and several members of the Honeysuckle Family such as snowberry (*Symphoricarpos albus*), honeysuckles (*Lonicera*), bush-honeysuckle (*Diervilla lonicera*), viburnums (*Viburnum*) and elder-berries (*Sambucus*). Sweet gale (*Myrica gale*) is common around the margins of ponds. Sweet-fern (*Comptonia peregrina*) and bearberry (*Arctostaphylos uva-ursi*) favour dry sandy areas.

Typical herbs include wild lily-of-the-valley (*Maianthemum canadense*), bluebead (*Clintonia borealis*), members of the Orchid Family (calypso, *Calypso bulbosa*; stemless lady's-slipper, *Cypripedium acaule*; twayblades, *Listera*; coral-roots, *Corallorhiza*; rattlesnake-plaintains, *Goodyera*), miterwort (*Mitella nuda*), goldthread (*Coptis groenlandica*), red baneberry (*Actaea rubra*), sanicle (*Sanicula marilandica*), sweet cicelys (*Osmorhiza*), bunchberry (*Cornus canadensis*), Indian-pipe (*Monotropa uniflora*), pinesap (*M. hypopithys*), one-flowered pyrola (*Moneses uniflora*), wintergreens (*Pyrola*), prince's-pine (*Chimaphila umbellata*), creeping snowberry (*Gaultheria hispida*), cow-wheat (*Melampyrum lineare*) and twin-flower (*Linnaea borealis*).

Salt-marshes along the Atlantic Coast of this and the Acadian Forest Region commonly harbour such halophytes (salt-lovers) as arrow-grass (*Triglochin maritima*), alkali-grasses (*Puccinellia*), spike-grass (*Distichlis spicata*), sedges such as *Carex subspathacea*, *C. paleacea*, *C. mackenzii*, and *C. glareosa*, a bulrush (*Scirpus rufus*), black grass (*Juncus gerardii*), knotweeds (*Polygonum*), three docks (*Rumex maritimus* var. *fueginus*, *R. mexicanus*, and *R. pallidus*), coast-blite (*Chenopodium rubrum*), orach (*Atriplex patula*; *A. glabriuscula*), sea-samphire (*Salicornia europaea*), sea-blites (*Suaeda*), sand-spurreys (*Spergularia*), sea-chickweed (*Arenaria peploides*), seaside crowfoot (*Ranunculus cymbalaria*), Scotch lovage



(*Ligusticum scoticum*), sea-milkwort (*Glaux maritima*), sea-lavender (*Limonium nashii*), a gerardia (*Gerardia maritima*), seaside-goldenrod (*Solidago sempervirens*) and asters (*Aster brachyactis*, *A. laurentianus*, *A. subulatus*). A peculiar member of the Parsley Family, *Lilacopsis chinensis*, with leaves replaced by hollow jointed petioles, occurs in the salt-marshes of Nova Scotia. Ditch-grass (*Ruppia maritima*) is common in pools in the salt-marshes. Other halophytic plants confined chiefly to the coastal sands include a meadow-grass (*Poa eminens*), sea lyme-grass (*Elymus mollis*), beachgrass (*Ammophila breviligulata*), a knotweed (*Polygonum fowleri*), saltwort (*Salsola kali*), sea-rocket (*Cakile edentula*), beach-pea (*Lathyrus japonicus*), seaside-spurge (*Euphorbia polygonifolia*), beach-heath (*Hudsonia tomentosa*), sea-lungwort (*Mertensia maritima*) and a large-flowered ragwort (*Senecio pseudo-arnica*). Species found more commonly on rocky sea ledges include pearlwrorts (*Sagina*), an angelica (*Coelopleurum*), thrift (*Armeria labradorica*) and seaside-plaintains (*Plantago juncoides* and *P. oliganthos*).

Undrained areas of acidic heath bog with a characteristic ericaceous flora are scattered throughout the wetter parts of this as well as the Great Lakes-St. Lawrence Forest Region. Their remarkably uniform flora typically includes such members of the Heath Family (*Ericaceae*) as leather-leaf (*Chamaedaphne*), Labrador-tea (*Ledum groenlandicum*), bog-laurel (*Kalmia polifolia*), bog-rosemary (*Andromeda glaucophylla*), small cranberry (*Oxycoccus quadripetalus*), velvet-leaf-blueberry (*Vaccinium myrtilloides*) and low sweet blueberry (*V. pensylvanicum*). Another member of the family, rhodora (*Rhododendron canadense*), occurs in heath bogs from Quebec to Nova Scotia and Newfoundland. Other characteristic heath bog species are a cotton-grass (*Eriophorum angustifolium*), baked-appleberry (*Rubus chamaemorus*), and two insectivorous plants—pitcher-plant (*Sarracenia purpurea*) and sundew (*Drosera rotundifolia*). Three-way sedge (*Dulichium arundinaceum*), marsh-five-finger (*Potentilla palustris*) and buckbean (*Menyanthes trifoliata*) are common associates along the borders of ponds and in drainage ditches.

An interesting facet of botanical work is the investigation of the changes that take place in the composition of plant communities as they follow climatic trends toward the establishment of what is termed the 'climax' association for a particular climatic region. These successional changes sometimes take place rapidly enough for direct observation. For example, white spruce (*Picea glauca*), the dominant member of upland areas throughout the transcontinental coniferous forest, is commonly quickly replaced by aspen (*Populus tremuloides*) or jack-pine (*Pinus banksiana*) following forest fires, the burnt areas also being taken over by dense stands of fireweed (*Epilobium angustifolium*). It may be decades before the original white spruce forest is re-established. Other changes take place more slowly but, by studying an association in various stages of its development, one may usually form a reliable opinion as to the various stages in the succession toward the climax association. Heath bogs illustrate this very well.

As noted above, the characteristic flora of a heath bog consists largely of ericaceous species, these growing on the drier upland sites of the bog. A pond in the bog, however, may contain such floating aquatics as pondweeds (*Potamogeton*), yellow pond-lilies (*Nuphar*) and water-lilies (*Nymphaea*), while its shores may be lined with cat-tails (*Typha*), reed-grass (*Phragmites communis*), marsh-five-finger (*Potentilla palustris*), water-parsnip (*Sium suave*), water-hemlocks (*Cicuta*) and buckbean (*Menyanthes trifoliata*). As the shore plants multiply, they gradually encroach upon the open water of the pond, building a floating carpet upon which it is sometimes possible to walk. The pond is finally completely filled by these plants, whose continued growth raises the level still more and accumulates soil upon which the ericaceous community can develop. Such acid-loving trees as black spruce (*Picea mariana*) and tamarack (*Larix laricina*) may also invade the area. Under present climatic conditions, the heath bog appears to be a rather stable climax association, but if drainage ditches are dug (as in many of the commercial peat areas) the acids of the soil will be gradually leached away by rain-water, opening the way to invasion by aspen and other pioneering species, and finally to the forest characteristic of the region.

Acadian Forest Floral Region

The accompanying map places Nova Scotia, Prince Edward Island and most of southern New Brunswick in this Region. It is transitional to the Boreal Forest and, particularly in the northern part, scarcely distinguishable from it as to tree species. In its more typical development, however, the following deciduous trees are characteristic: American elm (*Ulmus americana*), red oak (*Quercus borealis*), sugar-maple (*Acer saccharum*), red maple (*A. rubrum*), striped maple (*A. pensylvanicum*), yellow birch (*Betula lutea*), wire birch (*B. populifolia*), various ashes (*Fraxinus*), large-toothed aspen (*Populus grandidentata*), ironwood (*Ostrya virginiana*) and beech (*Fagus grandifolia*). A characteristic conifer is red spruce (*Picea rubens*).

Typical shrubs include witch-hazel (*Hamamelis virginiana*; blooming in the fall), black cherry (*Prunus serotina*), speckled alder (*Alnus rugosa*) and mountain-ash (*Sorbus americana*).

The herbaceous ground cover is very similar to that of the Great Lakes-St. Lawrence Forest Region and is described under that heading.

The Acadian Forest Region has somewhat more rainfall than the adjoining regions and is generally warmer than the Boreal Forest Region. Its most striking floristic element is a number of species characteristic of the Atlantic Coastal Plain, particularly the Pine Barrens of New Jersey, that reach their northern limits in Nova Scotia or Newfoundland (see p. 56); the small grass-like fern, curly-grass (*Schizaea pusilla*) is known only from shores, bogs and woods of Nova Scotia and Newfoundland and from the Pine Barrens of New Jersey; a member of the Amaryllis Family (*Lophiola americana*) is known only from bogs and peaty shores of western Nova Scotia, northern Delaware and the Pine Barrens of New Jersey (the Nova Scotian plant is sometimes separated as a distinct species, *L. septentrionalis*); broom-crowberry (*Corema conradii*), another characteristic Pine Barren plant, is definitely known in Canada only from sands and siliceous rocks of Nova Scotia, Prince Edward Island, Newfoundland and the Magdalen Islands of Quebec; dwarf huckleberry (*Gaylussacia dumosa*) is known in Canada only from peaty bogs of eastern New Brunswick and Newfoundland; Plymouth gentian (*Sabatia kennedyana*) inhabits sandy and peaty margins of fresh ponds of Nova Scotia (Yarmouth Co.), Massachusetts and Rhode Island; screw-stem (*Bartonia paniculata*) is known from Nova Scotia, Newfoundland and St. Pierre and Miquelon, south along the Coastal Plain to Florida.

Great Lakes-St. Lawrence Forest Floral Region

This Region includes northern New Brunswick, parts of the coastal region of the Gaspé Peninsula of Quebec, southern Quebec, southern Ontario (except for the Deciduous Forest Floral Region in the extreme south), and the extreme southeastern corner of Manitoba, together with an enclave around Lake St. John, Que., where the topography is strikingly like that of the St. Lawrence and Richelieu River lowlands. Temperatures are moderate but rainfall is generally somewhat less than in the Acadian Forest Floral Region.

Sugar-maple (*Acer saccharum*), red maple (*A. rubrum*), striped maple (*A. pensylvanicum*), red oak (*Quercus borealis*), red ash (*Fraxinus pensylvanica*), black ash (*F. nigra*), American elm (*Ulmus americana*), yellow birch (*Betula lutea*), wire-birch (*B. populifolia*) and large-toothed aspen (*Populus grandidentata*) occur in the Gaspé Peninsula (the northernmost part of the region), and beech (*Fagus grandifolia*) just enters the extreme southwestern part of the peninsula. Red spruce (*Picea rubens*), cottonwood (*Populus deltoides*), bur-oak (*Quercus macrocarpa*), white ash (*Fraxinus americana*), butternut (*Juglans cinerea*), and basswood (*Tilia americana*) extend northward to about the latitude of Quebec City, but the following drop out at about the latitudes of Ottawa and Montreal or sooner: black walnut (*Juglans nigra*), shagbark-hickory (*Carya ovata*), bitternut (*C. cordiformis*), white oak (*Quercus alba*), swamp white oak (*Q. bicolor*), yellow oak (*Q. muhlenbergii*), slippery elm (*Ulmus rubra*), rock elm (*U. thomasi*), hackberry (*Celtis occidentalis*), sweet birch (*Betula lenta*), and blue-beech (*Carpinus caroliniana*). Extensive stands of conifers

also occur, but chiefly in areas transitional to the Boreal Forest Region. However, the eastern hemlock (*Tsuga canadensis*) and eastern white cedar (*Thuja occidentalis*) have their main distribution in Canada in this Region.

The following shrubs or small trees occur more or less throughout the Region: Canada yew (*Taxus canadensis*), sweet gale (*Myrica gale*), beaked hazel (*Corylus cornuta*), swamp-birch (*Betula pumila*), speckled alder (*Alnus rugosa*), green alder (*A. crispa*), currants and gooseberries (*Ribes*), witch-hazel (*Hammamelis virginiana*), spiraeas (*Spiraea*), juneberries (*Amelanchier*), hawthorns (*Crataegus*), raspberries and blackberries (*Rubus*), wild plum (*Prunus americana*), Canada plum (*P. nigra*), pin-cherry (*P. pensylvanica*), choke-cherry (*P. virginiana*), black cherry (*P. serotina*), prickly-ash (*Xanthoxylum americanum*), stag-horn-sumac (*Rhus typhina*), mountain-holly (*Nemopanthes mucronata*), climbing bitter-sweet (*Celastrus scandens*), bladdernut (*Staphylea trifolia*), buckthorn (*Rhamnus alnifolia*), New Jersey tea (*Ceanothus americanus* and *C. ovatus*), leatherwood (*Dirca palustris*), buffalo-berry (*Shepherdia canadensis*), sanicle (*Sanicula marilandica*), sweet cicelys (*Osmorhiza*), John's-cabbage (*Hydrophyllum virginianum*), bush-honeysuckle (*Diervilla lonicera*), honeysuckles (*Lonicera*), snowberry (*Symphoricarpos albus*), and various viburnums (*Viburnum*).

Consisting chiefly of broad-leaved trees, this Region (as also the Acadian) provides too much shade during the summer months for a dense ground cover of smaller plants. However, before the leaves of the trees have expanded in the spring, a remarkably colourful and interesting flora springs up composed of plants able to complete their life cycle in the relatively short period of available sunlight between the end of March and the beginning of June and to store up reserves, chiefly in underground organs such as bulbs, tubers or root-stocks, for an early start on the next season's growth. Such 'spring' flowers include Jack-in-the-pulpit (*Arisaema atrorubens*), wild ginger (*Asarum canadense*), spring-beauty (*Claytonia caroliniana*), hepaticas (*Hepatica americana* and *acutiloba*), blue cohosh (*Caulophyllum thalictroides*), may-apple (*Podophyllum peltatum*), bloodroot (*Sanguinaria canadensis*), Dutchman's-breeches (*Dicentra cucullaria*), squirrel-corn (*D. canadensis*), false miterwort (*Tiarella cordifolia*), coolwort (*Mitella diphylla*), barren strawberry (*Waldsteinia fragarioides*), dwarf ginseng (*Panax trifolius*), and several members of the Lily Family such as bellworts (*Uvularia*), dog's-tooth-violet (*Erythronium americanum*), Solomon's-seal (*Polygonatum*), false Solomon's-seal (*Smilacina racemosa*), Indian cucumber-root (*Medeola virginiana*) and trilliums (*Trillium*). To people living in the Region, the annual thrill of the first foray into the awakening woods helps to compensate for the bleak winter months.

Another attraction of the Region is the blaze of colour before leaf-fall in the autumn that transforms the landscape into one of the most breath-taking spectacles of the world. Mixed with the green of the conifers are the yellows, reds and scarlets of the maples and the browns of the oaks and beeches, a favourite subject of the artist. Upon the approach of cold weather, a corky *abscission layer* gradually develops at the junction of the leaf-petiole with the stem, blocking off the escape of soluble sugars from the leaf and favouring the development of red, blue and purple pigments known as *anthocyanins*. These anthocyanins, whose production, unlike that of the green *chlorophylls*, is favoured by cold weather, gradually mask the chlorophylls, the various degrees of masking producing the range of tints from yellow to scarlet.

Deciduous (Carolinian) Forest Floral Region

This very small Region lies on the Palaeozoic limestones and dolomites of the Niagara Peninsula bordering the north shore of Lake Erie, south of a line joining Grand Bend, near the southeast end of Lake Huron, to Toronto, on the northwest end of Lake Ontario. A narrow strip extending northeastward along the north shore of Lake Ontario to about the vicinity of Belleville, east of which contact is made with the Precambrian granites and gneisses of the Laurentian Shield, is also probably admissible to this floristic Region. Its most striking feature is the presence of a number of plants at their northern limits and found nowhere else in Canada. The Canadian distributions of most of these have been plotted on maps by Fox and Soper (1952; 1953; 1954), Soper (1956; 1962), and Soper and Heimburger (1961).

The trees include red mulberry (*Morus rubra*) of the Family *Moraceae*, tulip-tree (*Liriodendron tulipifera*) and cucumber-tree (*Magnolia acuminata*) of the Family *Magnoliaceae*, white sassafras (*Sassafras albidum*) of the Family *Lauraceae*, pawpaw (*Asimina triloba*) of the Family *Annonaceae*, sycamore (*Platanus occidentalis*) of the Family *Platanaceae*, and black gum (*Nyssa sylvatica*) of the Family *Nyssaceae*. With the possible exception of sycamore, these species are all representatives of families found nowhere else in Canada. Soper (1953, fig. 9) indicates the northern limit of the Carolinian flora, based on the ranges of eleven genera, as extending no farther north than a line connecting the southeast end of Lake Huron and the northwest end of Lake Ontario, the line bending south to pass approximately through London, Brantford and Guelph. Sycamore has outlying stations near the south end of Lake Huron and near Picton, Prince Edward Co., on the north shore of Lake Ontario. Honey-locust (*Gleditsia triacanthos*) and Kentucky coffee-tree (*Gymnocladus dioica*) of the Family *Leguminosae* are also possibly native in this Region but have been planted extensively farther north so that it is difficult to define their native northern limits precisely. Another genus restricted to this area, but representative of a family containing more widespread genera, is that of the chestnut (*Castanea dentata*) of the Beech Family (*Fagaceae*). However, apart from clumps of suckers on old stumps and some young trees that may be seedlings sprung from nuts planted by squirrels, there does not appear to be a single mature tree surviving in Canada following the fungus blight that first appeared in New York City in 1934 and is estimated to have killed off, by girdling the branches, up to 99 p.c. of the population. Other trees restricted to the Region but representative of genera with more widespread species are black oak (*Quercus velutina*), chestnut-oak (*Q. prinus*), chinquapin-oak (*Q. prinoides*), pignut (*Carya glabra*), big shellbark (*C. laciniosa*), sweet pignut (*C. ovalis*), mockernut (*C. tomentosa*), black walnut (*Juglans nigra*) and blue ash (*Fraxinus quadrangulata*). Certain other trees such as white oak (*Quercus alba*), yellow oak (*Q. muehlenbergii*), bitternut (*Carya cordiformis*), shagbark-hickory (*C. ovata*) and black maple (*Acer nigrum*) have their main area in Canada here but extend northward to near Ottawa or Montreal. A study of the sociology of the trees of this Region has been published by Maycock (1963).

Shrubs or small trees restricted to this Region in Canada are yam (*Dioscorea villosa*; stem twining), spicebush (*Lindera benzoin*), wild senna (*Cassia hebecarpa*), redbud (*Cercis canadensis*), shining sumac (*Rhus copallina*), burning-bush (*Euonymus atropurpureus*), running strawberry-bush (*E. obovatus*), roughleaf dogwood (*Cornus drummondii*), flowering dogwood (*C. florida*), shrubby St. John's-wort (*Hypericum spathulatum*), low blueberry (*Vaccinium vacillans*) and trumpet-creeper (*Campsis radicans*).

Other shrubs with their main Canadian area in this Region but ranging northward generally to near Ottawa or Montreal include red cedar (*Juniperus virginiana*), two prickly vines climbing by tendrils (common greenbrier, *Smilax rotundifolia*, and china-root, *S. hispida*), wafer-ash (*Ptelea trifoliata*), northern prickly-ash (*Xanthoxylum americanum*), fragrant sumac (*Rhus aromatica*), poison sumac (*R. vernix*), climbing bittersweet (*Celastrus scandens*), bladdernut (*Staphylea trifolia*), Kalm's St. John's-wort (*Hypericum kalmianum*), grey dogwood (*Cornus racemosa*), deerberry (*Vaccinium stamineum*), maple-leaved viburnum (*Viburnum acerifolium*) and arrow-wood (*V. recognitum*).

Herbs restricted in Canada to this Region include walking fern (*Camptosorus rhizophyllus*), hart's-tongue fern (*Phyllitis scolopendrium*; early reports from New Brunswick are probably based upon introduced plants), burgrass (*Cenchrus longispinus*), sand-grass (*Triplasis purpurea*), two sedges (*Fimbristylis drummondii*; *Scleria verticillata*), unicorn-root (*Aletris farinosa*), blazing-star (*Chamaelirium luteum*), whorled pogonia (*Isotria verticillata*), nodding pogonia (*Triphora trianthophora*), yellow nelumbo (*Nelumbo lutea*), black snakeroot (*Cimicifuga racemosa*), isopyrum (*Isopyrum biternatum*), golden-seal (*Hydrastis canadensis*), twinleaf (*Jeffersonia diphylla*), wood-poppy (*Stylophorum diphyllum*), bowman's-root (*Gillenia trifoliata*; possibly escaped from gardens), wild indigo (*Baptisia tinctoria*), four bush-clovers (*Lespedeza*), swamp rose-mallow (*Hibiscus palustris*), green violet (*Hybanthus coloratus*), a prickly pear (*Opuntia compressa*), harbinger-of-spring (*Erigenia bulbosa*), cowbane (*Oxypolis rigidior*), spotted wintergreen (*Chimaphila maculata*),

columbo (*Swertia caroliniensis*), five milkweeds (*Asclepias exaltata*, *hirtella*, *purpurascens*, *sullivantii*, and *tuberosa*), two waterleaves (*Hydrophyllum appendiculatum* and *canadense*), wild potato-vine (*Ipomoea pandurata*), fog-fruit (*Lippia lanceolata*), three false foxgloves (*Aureolaria flava*, *pedicularia*, and *virginica*), blue-hearts (*Buchnera americana*), conobea (*Conobea multifida*), richweed (*Collinsonia canadensis*), corn-salad (*Valerianella chenopodiifolia*), climbing hempweed (*Mikania scandens*; the only climbing composite in Canada), wing-stem (*Actinomeris alternifolia*), leafcup (*Polymnia canadensis*), ironweeds (*Vernonia*) and four rosinweeds (*Silphium*).

Other herbs with their main area in this Region but ranging northward to near Ottawa or Montreal include two sedges (*Fimbristylis autumnalis* and *Scleria triglomerata*), skunk-cabbage (*Symplocarpus foetidus*), two aquatic water-meals (*Wolffia columbiana* and *W. punctata*; the simplest and smallest of all flowering plants), pokeweed (*Phytolacca americana*), a bush-clover (*Lespedeza capitata*) and an umbellifer (*Chaerophyllum procumbens*). The spring flowers listed for the Great Lakes-St. Lawrence Forest Floral Region (see p. 39) also occur here.

Prairie Grasslands and Parklands Floral Region

This Region begins a few miles east of Winnipeg and ends at the Rocky Mountain foothills of Alberta. Its northern boundary extends from the south end of Lake Winnipeg to the vicinity of Edmonton. Approximately the northern third is aspen parkland in which open stands of aspen (*Populus tremuloides*) and bur-oak (*Quercus macrocarpa*) mark the transition between the grasslands to the south and the boreal coniferous forest to the north. The Region comprises three general levels, rising from east to west. The first and lowest level includes most of the relatively moist Manitoba prairie except the extreme southwestern corner. It is marked off from the second prairie level to the west by a glacial moraine, the Missouri Coteau, west of Estevan in southeastern Saskatchewan. Because of the abundance of many relatively tall, conspicuously flowered plants such as prairie-lily (*Lilium philadelphicum*), beard-tongues (*Pentstemon*), asters (*Aster*), goldenrods (*Solidago*) and sunflowers (*Helianthus*), this first prairie level has a more lush appearance than those to the west, whose more arid nature is reflected in the abundance of prickly pear (*Opuntia polyacantha*), purple cactus (*Mamillaria vivipara*), prairie sagewort (*Artemisia frigida*), and such short wiry xerophilous grasses as grama-grass (*Bouteloua gracilis*) and buffalo-grass (*Buchloe dactyloides*). The third prairie level begins near Parkbeg, Sask., about 30 miles west of Moose Jaw, and continues westward to the Rocky Mountain foothills.

Precipitation is the principal factor affecting plant growth in the prairies but its seasonal distribution and its range of fluctuation from year to year are often more important than the actual total inches of rain. The average annual precipitation in southwestern Manitoba, for example, is between 10 and 28 inches, but occasional years of high rainfall tend to mask the true conditions. The years of drought are the critical ones. Much of the Manitoba area, as well as the parklands of Saskatchewan and Alberta, fall within Thorntwaite's Sub-humid Microthermal Climatic Province (see p. 5'), denoting suitable temperatures and adequate precipitation for plant growth. Most of the grasslands of Saskatchewan and Alberta, however, fall within his Semi-arid Microthermal Climatic Province, characterized by a deficiency of precipitation.

Several theories, including the effect of lightning, large herds of buffalo, or of fires made by the early Indians, have been advanced to account for the treelessness of the prairies, but climatic conditions are probably largely responsible. The characteristic absence of trees on exposed, well-drained upland sites reflects the adverse influence of low precipitation effectiveness, although the extremely tough nature of the thick prairie sod is undoubtedly also a major barrier to the establishment of tree seedlings. The well established and extensive root systems of the prairie species, which thoroughly occupy the soil in several more or less distinct strata from a level immediately below the surface, greatly reduce the chances for survival of tree seedlings, which must also withstand the extremely severe conditions of the first winter's exposure. These factors may largely explain the

scarcity of annuals in the prairie flora, as well as of weeds, except in disturbed areas. Under present climatic conditions, grassland and parkland appear to be in a state of balanced tension, their dividing line advancing or retreating in conformity with climatic cycles of varying duration. Groves of aspen stretch throughout the prairies along the margins of rivers and streams, and Bird (1961—*Ecology of the Aspen Parkland of Western Canada*) expresses the opinion that, where there is sufficient moisture and fires are not too frequent, the parkland is slowly replacing the prairie in the south and is itself being replaced by spruce along its northern front. It is interesting to note the occurrence of a relict spruce community in the Spruce Woods Forest Reserve south of Brandon, where isolated thickets and clumps of white spruce (*Picea glauca*), associated with creeping juniper (*Juniperus horizontalis*), are scattered throughout an area of typical prairie vegetation.

There appears to be no consistent correlation between local prairie communities and local soil types, except to the extent that the plants themselves have contributed to soil differentiation. Where both forest and prairie vegetation have developed on the original glacial till, the soil under the latter is more fertile by reason of the influence of the prairie vegetation itself and of the more arid climate to which the prairie species are adapted. In the forest, humus accumulates and mostly decays on the soil surface, whereas the numerous roots and rootstocks of prairie species add humus more generally throughout the soil profile, with consequent improvement in water-retaining properties, soil aeration, soil temperature, content of nitrogen-fixing bacteria and fungi, and ease of root penetration.

The arid nature of the upland prairie habitat finds expression in various xerophytic adaptations of the plants. The almost complete occupation of the various soil levels by the root systems of different species has already been noted. This points to a fine adjustment between species, so that considerable changes in their relative abundance are unlikely. Species such as june-grass (*Koeleria cristata*), with a shallow, widespreading root system, are able to use the moisture of the many light showers whose water does not soak in deeply, while deep-rooted species, such as ground-plum (*Astragalus caryocarpus*) and Indian turnip (*Psoralea esculenta*), can reach the more reliable water supply of greater depths. The enlarged root of the latter also serves as an organ of water storage, as does the stem of the purple cactus (*Mamillaria vivipara*) of the sand-dune habitat. Low stature, with attendant decrease of exposure to drying winds, is characteristic, few upland species exceeding a height of one or two feet. Species having small or narrow leaves are common, the lower leaves often being shed during periods of drought.

It may be noted here that the only western tree species that reaches the Prairie Provinces is the lodgepole pine (*Pinus contorta* var. *latifolia*), which occurs, as an outlier from its main area, on the Cypress Hills of southwestern Saskatchewan.

A typical prairie flora (representative, also, of the typical ground covering of the aspen parklands) commonly includes such species as the following, many of which belong to the Grass (*Gramineae*), Sedge (*Cyperaceae*), Rose (*Rosaceae*), Pulse (*Leguminosae*) and Composite (*Compositae*) Families: feathergrasses (*Stipa*), oat-grass (*Helictotrichon hookeri*), grama-grasses (*Bouteloua*), cord-grass (*Spartina gracilis*), wild rye (*Elymus macounii*), meadow-grasses (*Poa*), june-grass (*Koeleria cristata*), sedges (*Carex*), wild onions (*Allium*), stargrass (*Hypoxis hirsuta*), pasque-flower (*Pulsatilla ludoviciana*), prairie-buttercup (*Ranunculus rhomboideus*), thimbleweed (*Anemone cylindrica*), cut-leaved anemone (*A. multifida*), bladder-pods (*Lesquerella*), stinking-clover (*Cleome serrulata*), alumroot (*Heuchera richardsonii*), cinquefoils (*Potentilla*), torch avens (*Geum triflorum*), chamaerhodos (*Chamaerhodos nuttallii*), milk-vetches (*Astragalus*), loco-weeds (*Oxytropis*), wild licorice (*Glycyrrhiza lepidota*), hedysarum (*Hedysarum alpinum*), prairie-trefoil (*Lotus americanus*), prairie clovers (*Petalostemum*), Indian bread-root (*Psoralea esculenta*), golden bean (*Thermopsis rhombifolia*), leadplant (*Amorpha canescens*), fragrant false indigo (*A. nana*), wild flaxes (*Linum*), larkspur violet (*Viola pedatifida*), silverberry (*Elaeagnus commutata*), evening primroses (*Oenothera nuttallii* and *serrulata*), prairie-parsleys (*Lomatium*), golden alexanders (*Zizia aurea*), milkweeds (*Asclepias ovalifolia*, *speciosa*, and *viridiflora*), marble-seeds (*Onosmodium*), puccoons (*Lithospermum*), blue giant hyssop (*Agastache foeniculum*),

wild bergamot (*Monarda fistulosa*), owl's clover (*Orthocarpus luteus*), beard-tongues (*Pentstemon*), northern bedstraw (*Galium boreale*), western snowberry (*Symphoricarpos occidentalis*), spiked lobelia (*Lobelia spicata*), false dandelions (*Agoseris*), skeleton-weeds (*Lygodesmia*), everlastings (*Antennaria*), wormwoods (*Artemisia*), asters (particularly of the *Aster ericoides* group), golden asters (*Chrysopsis*), rabbit brush (*Chrysothamnus nauseosus*), Flodman's thistle (*Cirsium flodmanii*), purple cone-flower (*Echinacea angustifolia*), smooth fleabane (*Erigeron glabellus*), Gaillardia (*Gaillardia aristata*), iron-plants (*Haplopappus*), sunflowers (*Helianthus*), rubber-weeds (*Hymenoxys*), blazing-stars (*Liatris*), cone-flower (*Ratibida columnifera*), ragworts (*Senecio*) and goldenrods (*Solidago*).

Sand-dunes, roadsides, and 'blow-outs' in the dry prairie have such plants as scouring-rush (*Equisetum laevigatum*), spikemoss (*Selaginella densa*), creeping savin (*Juniperus horizontalis*), a fescue-grass (*Festuca altaica*), silkgrass (*Oryzopsis hymenoides*), sand-drop-seed (*Sporobolus cryptandrus*), panic-grasses (*Panicum*), sandgrass (*Calamovilfa longifolia*), beardgrasses (*Andropogon*), sedges (*Carex*), umbrella-sedges (*Cyperus houghtonii* and *C. schweinitzii*), spiderwort (*Tradescantia occidentalis*), winged pignut (*Cycloloma atriplicifolium*), bugseeds (*Corispermum*), umbrella-plant (*Eriogonum flavum*), four-o'clocks (*Mirabilis hirsuta* and *nyctaginea*), mouse-ear chickweed (*Cerastium nutans*), tansy-mustards (*Descurainia*), treacle-mustards (*Erysimum*), poison ivy (*Rhus radicans*), evening star (*Mentzelia decapetala*), scarlet gaura (*Gaura coccinea*), scarlet mallow (*Sphaeralcea coccinea*), prickly pear (*Opuntia polyacantha*), purple cactus (*Mamillaria vivipara*), milkweeds (*Asclepias viridiflora* and *verticillata*), vervain (*Verbena bracteata*), moss pink (*Phlox hoodii*), buffalo-bur (*Solanum rostratum*), broom-rapes (*Orobanche fasciculata* and *ludoviciana*), perennial ragweed (*Ambrosia psilostachya*), false ragweed (*Iva xanthifolia*), broom-weed (*Gutierrezia sarothrae*) and townsendsia (*Townsendia exscapa*). Most of the original grass-land habitats have disappeared under cultivation and it is significant that many sun-loving prairie species, together with many common weeds, occur in such open sandy habitats, their establishment there being probably largely the result of lack of competition with forest species, although some aspen (*Populus tremuloides*) and bur-oak (*Quercus macrocarpa*) may be present.

Saline or alkaline flats, common throughout the prairies, are characterized by halophytic members of the Goosefoot Family (*Chenopodiaceae*) such as glasswort (*Salicornia rubra*), winter sage (*Eurotia lanata*), sea-blite (*Suaeda depressa*), orach (*Atriplex argentea*, *nuttallii*, and *patula*), poverty-weed (*Monolepis nuttalliana*), greasewood (*Sarcobatus vermiculatus*), suckleya (*Suckleya suckleyana*) and coast-blite (*Chenopodium rubrum*), together with alkali-grass (*Distichlis stricta*), cord-grasses (*Spartina gracilis* and *pectinata*), goose-grass (*Puccinellia nuttalliana*), sand-spurry (*Spergularia marina*), seaside crowfoot (*Ranunculus cymbalaria*), sea-milkwort (*Glaux maritima*), heliotrope (*Heliotropium curassavicum*) and poverty-weed (*Iva axillaris*).

Western Floral Region

This is an extremely mountainous area lying chiefly in the southern half of British Columbia although one of the Forest Regions (the Subalpine) includes the Rocky Mountains of southwestern Alberta and extends into the northern half of British Columbia to merge with the Boreal Forest Region. Other Forest Regions include those called by Rowe (1959) the Columbia, Montane and Coast Forest Regions. Passing from west to east at about the latitude of Vancouver Island, the following mountain ranges are traversed: Coast, Lillooet, Cascades, Columbia, Monashee, Selkirks, Purcell, and Rocky Mountains.

The Coast Forest Region includes the lower level of Vancouver Island, the Queen Charlotte Islands, and the coastal region (and Coast Range) of British Columbia. The Subalpine Forest Region has the general shape of a horseshoe, the Coast Range of its western arm bounding the western edge of the Montane Forest Region and the Cariboo, Columbia, Selkirks and Rocky Mountain ranges of its eastern arm enclosing the finger-like river valley strips of the Columbia Forest Region. It includes the forests above about 3,000 feet altitude on Vancouver Island and the mainland coast, and between approximately 5,000 and 6,800 feet altitude in the Rocky Mountain section. The other forest regions lie generally below

the 3,000-foot level, while the treeless slopes and summits above treeline constitute a separate floral region of alpine and arctic-alpine plants. Shaw (1909) has published a paper entitled *The Causes of Timber-line on Mountains*.

The floras of the various major subdivisions of the Western Floral Region are described briefly under several headings:—

Coast Forest Region.—The lower levels of Vancouver Island, the Queen Charlotte Islands and the mainland coastal strip north to the Alaska Panhandle lie in this Region, whose heavy rainfalls and mild temperatures are reflected in the dominance of the following mesophytic (moisture-loving) trees essentially confined to the Region: Sitka spruce (*Picea sitchensis*), amabilis fir (*Abies amabilis*), mountain hemlock (*Tsuga mertensiana*), yellow cypress or cedar (*Chamaecyparis nootkatensis*), shore pine (*Pinus contorta*; the var. *latifolia*, with a more slender trunk, is the more widely distributed lodgepole pine), red alder (*Alnus rubra*), broadleaf maple (*Acer macrophyllum*) and cascara (*Rhamnus purshiana*; a small area also in the interior). On Vancouver Island and the adjacent mainland are the only stands in Canada of Garry oak (*Quercus garryana*), arbutus (*Arbutus menziesii*; bark bright orange-red), and vine maple (*Acer circinatum*). Pacific dogwood (*Cornus nuttallii*), usually a shrub but occasionally a small tree, is found on Vancouver Island and in the lower Fraser Valley.

More wide-ranging trees include grand fir (*Abies grandis*), western hemlock (*Tsuga heterophylla*), lodgepole pine (*Pinus contorta* var. *latifolia*), western white pine (*P. monticola*), western red cedar (*Thuja plicata*), Douglas fir (*Pseudotsuga mucronata*), Rocky Mountain juniper (*Juniperus scopulorum*), western yew (*Taxus brevifolia*), Sitka alder (*Alnus sinuata*), black cottonwood (*Populus trichocarpa*) and dwarf maple (*Acer glabrum*).

The large-leaved ericaceous shrub, salal (*Gaultheria shallon*), has its main distribution in this Region. A member of the Broom-rape Family (*Boschniakia hookeri*) lives parasitically on its roots and was formerly used as a food plant by the Indians. Other shrubs essentially confined to the Coast Forest Region include Sitka willow (*Salix sitchensis*), two gooseberries (*Ribes divaricatum* and *R. lobbii*), two currants (*Ribes bracteosum* and *R. sanguineum*), Indian plum (*Osmaronia cerasiformis*), salmon-berry (*Rubus spectabilis*), Oregon crab-apple (*Pyrus fusca*), red bilberry (*Vaccinium parvifolium*) and evergreen huckleberry (*V. ovatum*). More wide-ranging shrubs include Oregon grape (*Mahonia aquifolium*), thimbleberry (*Rubus parviflorus*), buck-brush (*Ceanothus sanguineus*), devil's-club (*Oplopanax horridus*), tall mountain bilberry (*Vaccinium membranaceum*) and wax-berried elder (*Sambucus cerulea*).

Common herbs of this Region include giant horsetail (*Equisetum telemateia*), several ferns (*Blechnum spicant*, *Cheilanthes gracillima*, *Dryopteris arguta*, *Gymnogramme triangularis*, *Polypodium scolieri*, *P. vulgare*, *Polystichum andersonii*, *P. munitum*, *Woodwardia fimbriata*), western skunk-cabbage (*Lysichiton americanum*), western bluebead-lily (*Clintonia uniflora*), western wake-robin (*Trillium ovatum*), western wild ginger (*Asarum canadense*), western yellow water-lily (*Nuphar polysepalum*), western marsh-marigold (*Caltha asarifolia*), western buttercup (*Ranunculus occidentalis*), false bugbane (*Trautvetteria grandis*), cutleaf goldthread (*Coptis asplenifolia*), vanilla-leaf (*Achlys triphylla*), western Dutchman's-breeches (*Dicentra formosa*), foamflowers (*Tiarella laciniata* and *T. unifoliata*), several western miterworts (*Mitella*), goat's-beard (*Aruncus sylvestris*), ocean spray (*Holodiscus discolor*), a violet (*Viola glabella*), water parsley (*Oenanthe sarmentosa*), white-veined wintergreen (*Pyrola picta*), white-flowered rhododendron (*Rhododendron albiflorum*), false azalea (*Menziesia ferruginea*), little prince's pine (*Chimaphila menziesii*), deer-cabbage (*Nephrophyllidium crista-galli*) and swamp hedge-nettle (*Stachys mexicana*). The beautiful California rhododendron (*Rhododendron macrophyllum*) has extensive colonies on Vancouver Island and near Hope, B.C. On Vancouver Island are the only stations in Canada for such representatives of a California-type flora as a member of the Lily Family (*Brodiaea hyacinthina*), a member of the Poppy Family (*Meconella oregana*), two members of the Mustard Family (*Platyspermum scapigerum* and *Thysanocarpus curvipes*; a third, *Athyas pusillus*, is also found here and near Kootenay Lake), and a violet (*Viola nuttallii* var.

praemorsa). On Vancouver Island and adjacent islands are the only stations in Canada for four salt-marsh and seashore halophytes, three of them members of the Composite Family (*Baeria maritima*, *Cotula australis*, and *Jaumea carnosa*) and one a member of the Parsley Family (*Glehnia littoralis* var. *leiocarpa*). Other halophytic coastal species include arrow-grass (*Triglochin maritima*), a very large-headed sedge (*Carex macrocephala* var. *anthericoides*), salt-rush (*Juncus lescuirii*), western sea-samphire (*Salicornia ambigua*), sand-spurrey^s (*Spergularia canadensis* var. *occidentalis* and *S. macrotheca*), Chinook licorice (*Lupinus littoralis*), beach-pea (*Lathyrus japonicus*), a member of the Parsley Family with leaves reduced to hollow, jointed petioles (*Lilaeopsis occidentalis*; a similar species, *L. chinensis*, occurs on the coast of Nova Scotia), red goosefoot (*Convolvulus soldanella*), a franseria (*Franseria chamissonis*; with the habit of ragweed, *Ambrosia artemisiifolia*) and a large-flowered ragwort (*Senecio pseudo-arnica*; this, the arrow-grass and the beach-pea also occur along the Atlantic Coast).

Subalpine Forest Region.—As previously noted, this Region comprises the higher levels of the forests of British Columbia and southwestern Alberta, with a transition at lower levels to the forests characteristic of the other climatic belts and in the north with the trancontinental boreal forest. Essentially confined to it are amabilis fir (*Abies amabilis*), whitebark pine (*Pinus albicaulis*), limber pine (*P. flexilis*), mountain hemlock (*Tsuga mertensiana*), and alpine larch (*Larix lyallii*), although the dominant species are Engelmann spruce (*Picea engelmannii*) and alpine fir (*Abies lasiocarpa*). Extensive stands of lodgepole pine (*Pinus contorta* var. *latifolia*) clothe areas after burning, and there is some Douglas fir (*Pseudotsuga mucronata*) in the extreme southwestern Alberta section. On the east side of the Coast Range are some western hemlock (*Tsuga heterophylla*), western red cedar (*Thuja plicata*), and western white birch (*Betula papyrifera* var. *commutata*), and in the northern part is an admixture of boreal forest species such as white and black spruce (*Picea glauca* and *mariana*), aspen (*Populus tremuloides*) and balsam-poplar (*Populus balsamifera*). The herbaceous ground-cover vegetation is transitional between that of the treeless summits and slopes and the lower-lying forest regions (see p. 44).

Montane Forest Region.—"The Montane Forest has developed in response to the prevailing dry climate of the central plateau land of British Columbia and of the southern mountain valleys adjacent to the Alberta boundary" (Rowe, 1959). Douglas fir (*Pseudotsuga mucronata*) is the primary dominant as far north as the northern boundary of the Fraser Plateau at about the latitude of Quesnel, although it is replaced over considerable areas by lodgepole pine (*Pinus contorta* var. *latifolia*) after fire. Engelmann spruce (*Picea engelmannii*) and alpine fir (*Abies lasiocarpa*) from the upper subalpine forests mix with these on cool north-facing slopes throughout the Region, and south of about latitude 51° N in the arid grassland region characteristic of the Dry Belt between Kamloops and Penticton and around Kootenay Lake, ponderosa pine (*Pinus ponderosa*) "... extends into the grassland on rocky or sandy soils and into the Douglas fir zone on warm sunny slopes The pine forms a relatively permanent type over large areas because of the frequency of fires" (Rowe, 1959). Black cotton (*Populus trichocarpa*) is conspicuous on alluvial flats of the lowlands. Western larch (*Larix occidentalis*) occurs on drier sites in the southern part and white spruce (*Picea glauca*), aspen (*Populus tremuloides*) and paper birch (*Betula papyrifera*) mark the transition in the north to the transcontinental coniferous boreal forest.

Shrubs confined to the above-mentioned Dry Belt (with an annual rainfall rarely exceeding seven inches) include antelope-brush (*Purshia tridentata*) and a sagebrush (*Artemisia tridentata*). Other characteristic shrubs include twin-fruited ninebark (*Physocarpus malvaceus*) and rabbit-brush (*Chrysothamnus nauseosus*). Characteristic xerophytic herbs of the Dry Belt include a bunchgrass (*Agropyron spicatum*), several species of umbrella-plant (*Eriogonum*), rock pink (*Talinum spinescens*), bitter-root (*Lewisia rediviva*), a bladder-pod (*Lesquerella douglasii*), a buttercup (*Ranunculus glaberrimus*), four species of stick-leaf (*Mentzelia*), several lupines (*Lupinus*), several milk-vetches (*Astragalus*), a scor-pion-weed (*Phacelia linearis*), perennial gilia (*Gilia aggregata*), a balsamroot (*Balsamorhiza*

hirsuta), narrowleaf fleabane (*Erigeron linearis*), several star-thistles (*Centaurea*) and desert pink (*Stephanomeria tenuifolia*). Other more mesophytic shrubs of wider distribution occur in the less arid portions.

Columbia Forest Region.—A large part of the Kootenay River Valley, the upper valleys of the Thompson and Fraser Rivers, and the Quesnel Lake area of British Columbia are included in this Region. Upon encountering the mountains of this area (roughly from south to north, the Selkirk, Purcell, Monashee, Columbia and Cariboo ranges), the eastward-moving Pacific air masses rise, cool, and condense moisture, resulting in what is known as the "Interior Wet Belt". Up to an altitude of about 4,000 feet, the forest bears a strong resemblance to that of the Pacific Coast, dominated by western hemlock (*Tsuga heterophylla*) and western red cedar (*Thuja plicata*), with varying amounts of Douglas fir (*Pseudotsuga mucronata*), western white pine (*Pinus monticola*), lodgepole pine (*P. contorta* var. *latifolia*), Engelmann spruce (*Picea engelmannii*), and alpine fir (*Abies lasiocarpa*) and, in the southern section, scattered grand fir (*Abies grandis*) and western larch (*Larix occidentalis*). Black cottonwood (*Populus trichocarpa*) favours recent alluvial soils.

Climatically similar to the Coast Forest Region and with its valleys interpenetrating the Montane and Subalpine Forest Regions, the shrubby and herbaceous vegetation of the Columbia Forest Region is very similar to that of these other Regions, although the Selkirks, being rather a plateau with emergent peaks, afford a remarkable development of alpine meadows, with the characteristic plants of such higher Regions.

Alpine Floral Region.—This Region includes all of the mountainous areas above the tree-line (in general, above the 3,000-foot level on Vancouver Island and the adjacent Coast Range to above the 5,000-foot to 6,800-foot level in the Selkirks and Rockies). Many alpine species are also circumpolar in arctic regions and constitute a group known as arctic-alpine. The Canadian distributions of three arctic-alpine species, alpine bistort (*Polygonum viviparum*), snow draba (*Draba nivalis*) and woolly fernweed (*Pedicularis lanata*), and three alpine species, Lyall's saxifrage (*Saxifraga lyallii*), heartleaf arnica (*Arnica cordifolia*) and Hooker's mountain avens (*Dryas hookeriana*), are shown in the *Atlas of Canada* (1957, sheet 38, maps 2 and 9).

In addition, the following are representative of the rocky summits, ledges and talus slopes above timber-line: several grasses of the genus *Poa*, many sedges (*Carex*), several rushes (*Juncus*; *Luzula*), dwarf willows (*Salix*), umbrella-plants (*Eriogonum*), mountain-sorrel (*Oxyria digyna*), sandworts (*Arenaria*), alpine bitter cress (*Cardamine bellidifolia*), several drabas (*Draba*), roseroot (*Sedum roseum*), several cinquefoils (*Potentilla*), luetkea (*Luetkea pectinata*), several locoweeds (*Oxytropis*), black crowberry (*Empetrum nigrum*), several willow-herbs (*Epilobium*), four cassiope (*Cassiope*), glandular Labrador-tea (*Ledum glandulosum*), alpine azalea (*Loiseleuria procumbens*), three mountain heaths (*Phyllodoce*), Lapland rosebay (*Rhododendron lapponicum*), dwarf blueberry (*Vaccinium caespitosum*), bog blueberry (*V. uliginosum*), a scorpion-weed (*Phacelia sericea*), alpine speedwell (*Veronica alpina*), beard-tongues (*Pentstemon*), several everlastings (*Antennaria*), several arnicas (*Arnica*), alpine hawk's-beard (*Crepis nana*), several fleabanes (*Erigeron*) and several ragworts (*Senecio*).

Moist or wet alpine meadows, particularly in the Selkirks, commonly harbour such mesophytic species as alpine timothy (*Phleum alpinum*), cotton-grasses (*Eriophorum*), sedges (*Carex*), western dog's-tooth-violet (*Erythronium*), Indian hellebore (*Veratrum eschscholtzii*), rein-orchises (*Habenaria*), western pasque-flower (*Pulsatilla occidentalis*), white marsh-marigold (*Caltha leptosepala*), a buttercup (*Ranunculus eschscholtzii*), globe-flower (*Trollius latus*), a grass-of-Parnassus (*Parnassia fimbriata*), a saxifrage (*Leptarrhena pyrolifolia*), fern-weeds (*Pedicularis bracteosa* and *P. groenlandica*), Sitka valerian (*Valeriana sitchensis*) and arnicas (*Arnica*).

Typical lists of alpine and subalpine floras as observed in Jasper and Banff National Parks, Alta., are given by Porsild (1959). Underhill (1961) has prepared an illustrated guide to some of the alpine plants of Manning Provincial Park, B.C., near the Washington boundary.

Arctic Barren Grounds Floral Region

Botanically, the Canadian Arctic is generally regarded as comprising the treeless region along the northern mainland and the numerous islands of the Arctic Archipelago (see map). Its southern boundary, shown in the map by Porsild (1951a, p. 11), coincides with the northern limits of the transcontinental boreal coniferous forest, and is so indicated in the maps referred to above, as well as in the map plotted by Hustich (1953) showing the northern limits of white and black spruce. Rousseau (1952) has used plants as the basis of his separation of the Quebec-Labrador area into arctic, hemiarctic, and subarctic divisions, each with several subdivisions.

Many species are endemic (confined) to the Arctic, some have alpine stations farther south and others are of wide distribution in Canada. Porsild (1957 and 1964) has published maps of the ranges of the 340 species and major geographical races found in the Canadian Arctic Archipelago (representing 115 genera distributed among 38 families). In an earlier paper, basing his calculations on the total of 327 species then known in the Archipelago, Porsild (1955) classed 143 species (43.9 p.c.) as belonging to a widely distributed circumpolar group (33 high-arctic, 42 arctic-alpine, and 68 low-arctic). North American species comprised 58 North American Radiants, 10 Cordilleran Endemics, 26 Arctic Archipelago Endemics, 10 Western Arctic Endemics, 16 Eastern Arctic Endemics, 15 Amphi-Bearingian species, 17 northern Amphi-Atlantic species, and 31 southern Amphi-Atlantic species. The significance of these categories is pointed out in the discussion entitled "Plant Distribution" (p. 51). Polunin (1940) lists 297 species for the botanical Arctic east of about 97° West Longitude. For a general account of the vegetation and ecology of the Canadian eastern Arctic, see Polunin (1948).

In addition to climatic factors of the botanical Arctic dealt with in a general manner in the discussion of "The Plant Environment", two features deserve special attention—permafrost (permanently frozen ground) and the effect on vegetation of soil frost phenomena.

The map accompanying the paper by Jenness (1949) indicates the southern limits of permafrost in Canada as roughly coinciding with the -5° C isotherm of mean annual temperatures. Extensive areas of permafrost are depicted as extending as far south as Fort Severn on the south coast of Hudson Bay, while patches are shown as far south as the middle of James Bay. Jenness writes that, "Permafrost seems to affect vegetation mainly in two ways. Wherever the active layer is shallow, the frozen ground represses all deep-rooted species and limits growth to those that have shallow roots. Of Canadian trees, spruce (both black and white), balsam, poplar and the birches are all shallow-rooted, and all will grow above the permafrost. . . . The second way in which permafrost affects vegetation is through its influence on drainage. Because it provides an impervious base to subsurface water, it confines drainage to the shallow active layer. . . . In such areas ground-water eliminates all but the most water-loving species. . . . Porsild believes, however, that were the soil not so waterlogged, it would revert to barren desert on account of the climate. And it is the permafrost that keeps it waterlogged." By "active layer" is meant the top section subject to annual freezing and thawing, thus not part of the permafrost proper.

According to Benninghoff (1952), "Soil surfaces are in places rendered unavailable to plants or to certain kinds of plants because of soil stirring, sorting and transport by frost action. Patterned ground, i.e., surfaces with polygons, pitted tundra, soil stripes, and similar features, gives striking demonstrations of these effects. . . . Plants affect soil frost phenomena most significantly through controls exercised on the thermal regime of the soils, and these controls and resultant effects are probably different for all natural sites. . . . Plant succession in temperate regions tends to establish more mesophytic conditions in which drainage relations are less extreme. But in regions of severe frost climate, plants commonly generate conditions of extreme lack of drainage and greatly intensified soil frost. . . . Because of soil frost changes following disturbance, the affected surface and the local environment may be so greatly modified that entirely different communities occupy the site for unknown periods of time."

Porsild (1951a) believes that such soil conditions, combined with the shortness of the growing season, the scarcity of soil and the low precipitation, affect plant growth more than the actual air temperature. He notes that absorption of heat by the vegetation and dark-coloured soil may raise the actual temperature of the surface soil and the air surrounding the plant as much as 25 or even 40 degrees F. above that of the air higher up. Also, many arctic plants are able to recover from complete freezing, thus extending the length of their growing season into those months whose first frosts would kill or make dormant plants adapted to higher temperatures

He notes that "Many arctic plants are xerophytes: plants adapted to withstand prolonged drought by having rather small, often leathery leaves or by having their leaves and stems covered by densely matted hairs that provide a felt-like covering for the stomata. . . . As protection against desiccation rather than low temperatures, the wintering buds of many arctic plants are placed just below the surface of the soil (hemiscryptophytes), or just above the surface where they are protected by the persisting leaves, leafstalks or stipules of former years (chamaephytes). . . . By their low and compact growth habit (cushion plants), arctic plants are well adapted to resist desiccation and mechanical abrasion by wind and by drifting snow and sand."

The commonness of vegetative reproduction among arctic plants through creeping rootstocks or adventitious roots and buds allows many of them to propagate even in years with exceptionally severe climates. Nodding saxifrage (*Saxifraga cernua*) and alpine bistort (*Polygonum viviparum*) frequently have all or most of their flowers replaced by bulbils that fall off and take root.

Porsild recognizes four major plant communities in the Canadian Arctic: rock desert or fell-field communities (rock deserts: unstable talus slopes or scree; gravelly river flats and fans), tundra communities (heaths: grasslands: willow and alder thickets: marsh and wet tundra: snowflashes), strand communities (lagoon and salt-marsh: sand dunes and gravel beaches: rocky shores), and freshwater communities (ponds and lakes; brooks and rivers).

Growing among the numerous lichens of the rock deserts may be found small ferns (*Dryopteris fragrans*; *Woodsia glabella*; *W. ilvensis*), large mats of crowberry (*Empetrum nigrum*), cotton-grass (*Eriophorum vaginatum*), and a "rock garden" of plants with brightly coloured flowers such as moss pink (*Silene acaulis*), arctic poppy (*Papaver radiatum*), species of *Draba*, saxifrages (*Saxifraga*), *Hedysarum mackenzii*, locoweeds (*Oxytropis*), alpine milk-vetch (*Astragalus alpinus*), river-beauty (*Epilobium latifolium*) and large-flowered wintergreen (*Pyrola grandiflora*).

The tundra communities are characterized by tussocks or 'nigger-heads' of various grasses and sedges, arctic lupine (*Lupinus arcticus*), fern-weeds (*Pedicularis*), sweet coltsfoot (*Petasites frigidus*), and various members of the Heath Family such as Labrador-tea (*Ledum decumbens*), Lapland rhododendron (*Rhododendron lapponicum*), bearberry (*Arctostaphylos alpina* and *A. rubra*), white heather (*Cassiope tetragona*), bilberry (*Vaccinium uliginosum*), and alpine cranberry (*V. vitis-idaea*), the bushes of the thicketed areas being dwarf birch (*Betula glandulosa*) and various willows (*Salix*), with some alder (*Alnus crispa*) in the southern area. Alpine clubmoss (*Lycopodium alpinum*), a dwarf willow (*Salix herbacea*), mountain sorrel (*Oxyria digyna*) and dwarf buttercup (*Ranunculus pygmaeus*) are common in snowflashes.

Halophytic (salt-loving) grasses, sedges and rushes characterize the coastal lagoons and salt-marshes of the strand communities, with an admixture of sweet-scented white buttercup (*Ranunculus pallasii*), white marsh-marigold (*Caltha natans*), and a few other marsh herbs. Lyme-grass (*Elymus mollis*) is common on gravel beaches and sand dunes, together with other grasses, a few halophytic sedges, beach sandwort (*Arenaria peploides*) and a few species of willow. On rocky shores are found dense carpets of goose-grass (*Puccinellia*), together with scurvy-grass (*Cochlearia*), chickweed (*Stellaria humifusa*) and a few species of willow.

Larger ponds and lakes are nearly all too cold to support vascular aquatic plants but possess a rich microscopic algal flora. In smaller ponds may be found pondweeds (*Potamogeton*), aquatic buttercups (*Ranunculus hyperboreus*; *R. aquatilis*) and mare's-tail (*Hippuris vulgaris*). Most brooks and streams are too cold or turbulent for vascular plants but protected stream margins and floodplains may support various grasses and sedges.

The Plant Environment

For tables and maps dealing with the climate of Canada, reference may be made to the *Climatological Atlas of Canada* (Thomas, 1953). More recent maps of various climatic zones (as well as of forest regions, vegetation zones, typical plant ranges and ranges of the principal commercial trees) are to be found in the *Atlas of Canada* (1957). The present paper is concerned with certain less obvious ways in which variously interacting factors may affect the climate and plant distribution of a region, matters of the utmost importance in interpreting the various distributional patterns of Canadian plants.

Temperature.—A factor of prime importance in its general effect on the Canadian climate is the distribution of heat by ocean currents, opposite extremes of which operate along the Pacific and Atlantic Coasts. The warm waters of the Japanese current exert a profoundly ameliorating effect in their northerly flow against the northern part of the Pacific Coast. This, combined with the huge volumes of relatively warm water discharged by the Mackenzie River system into its extensive delta bordering the Arctic Ocean, results in mean annual temperatures in southern Yukon of approximately the same magnitude as those in the Gulf of St. Lawrence region of the Atlantic Coast, fully ten degrees of latitude farther south. Here, the cold waters of the Greenland and Labrador currents flow southward along the Atlantic Coast, markedly lowering temperatures and producing weeks of cold rain and fog.

The opposite effects of the Atlantic and Pacific currents explain the fact that maps of temperature isotherms indicate an increasingly steep northwesterly trend from east to west, due allowance being made for the depressing effect of the cold waters of Hudson Bay. It is immediately apparent that the southern boundary of the botanical Arctic Region by no means corresponds with the geographic Arctic Circle except to some degree in the extreme northwest. As is well known, temperature is one of the most important factors in the distribution of plant life, provided such other factors as precipitation, wind velocity, length of daylight, altitude, soil composition, and competition do not exert a 'limiting' effect. The southern boundary of the botanical Arctic, as pointed out previously, is generally regarded as approximately the average of the northern limits of white spruce (*Picea glauca*) and black spruce (*P. mariana*). These lines reflect the northwesterly trend of temperature isotherms in the same latitudes, coinciding roughly with the 50° F. isotherm of mean monthly temperatures. As pointed out by Porsild (1951a), however, "... large parts of the 'barren grounds' are treeless not because of an insufficient summer temperature but more likely because of insufficient precipitation during summer, coupled with high frequency of winds and extreme dryness of the air during winter". A precise correspondence between temperature isotherms and boundaries of biotic regions is not to be expected.

There is also strong evidence that secular or cyclic changes of temperature are still occurring following the Pleistocene epoch and that floristic boundaries have not yet reached a state of equilibrium. Griggs (1934) presents strong evidence that the forest in Alaska is pushing northward into the tundra. He concludes from pollen studies that the advance is a secular one in the nature of recovery from the last era of glaciation during a period of gradual improvement in climate, rather than a cyclic one with the "... unstable forest border slowly swinging back and forth like a pendulum now favored for a few hundred years, now driven back again by adverse conditions...".

The accompanying map places most of the interior of the Gaspé Peninsula of Quebec in the coniferous Boreal Forest Region, whereas large coastal strips are placed in the Great Lakes-St. Lawrence Forest Region, characterized by such northern hardwoods as

maple, oak, elm, beech and ash. Sugar-maple (*Acer saccharum*) and red oak (*Quercus borealis*) form isolated stands in this coastal region. Beech (*Fagus grandifolia*) is found only in the southwestern extremity of the peninsula. Dansereau (1944) believes that these coastal hardwood stands are remnants of a former more widespread deciduous forest of a post-glacial warm period. A discussion of this supposedly *xerothermic* period is given by Raup (1937) and Sears (1942). A distinct amelioration of climate (with subsequent deterioration) is generally accepted to have occurred in Greenland, Iceland and Scandinavia in post-Pleistocene times. The existence of such a warm post-glacial period in eastern North America is supported by the finding of pollen of the hemlock (*Tsuga canadensis*) at Matamek, on the north shore of the Gulf of St. Lawrence, several hundred miles from its present limits. The persistence in Newfoundland of such southern Coastal Plain species as curly-grass fern (*Schizaea pusilla*) and broom-crowberry (*Corema conradii*) also points to a relatively recent climate of more temperate nature, as has the discovery of logs buried in a bog at Blanc Sablon, southern Labrador, some miles from the present edge of the forest. In accordance with the present differences in climatic conditions between Western and Eastern Canada, however, Savile (1963) notes several factors in addition to low temperatures that evidently contribute to the inability of white spruce (*Picea glauca*) to spread into the barrens in the vicinity of Great Whale River, on the southeast coast of Hudson Bay.

Precipitation-Evaporation Ratio.—Another climatic factor of great importance in regions with comparatively little rainfall is the relationship between precipitation and evaporation, rather than precipitation alone. Under certain conditions, a few inches of rainfall may be sufficient for a plant to complete its life cycle. However, if high temperatures or high winds cause abnormally rapid evaporation from a plant (transpiration), it may wilt and die, particularly in the seedling stage.

In order to map climatic provinces that would correspond to observed biotic provinces, Thornthwaite correlated evaporation measurements made at twenty-one meteorological stations in the United States with the corresponding monthly precipitation and mean monthly temperature at the same stations. By so doing, he was able to devise a formula that allowed the computation of the P-E ratio (monthly precipitation divided by monthly evaporation), and hence, the P-E index (sum of the twelve P-E ratios). Plotting the indices on a map, and drawing isopleths, he divided North America into the humidity provinces Wet, Humid, Sub-humid, Semi-arid and Arid.

The Boreal Forest Floral Region falls into Thornthwaite's "taiga" Climatic Province, with some overlapping into the more northerly "tundra" Climatic Province, both provinces being characterized by the limiting factor of low temperatures, precipitation being usually adequate for plant growth. The Acadian Forest Floral Region falls within his Wet Microthermal Climatic Province, characterized by suitable temperatures and adequate precipitation at all seasons for plant growth. The Great Lakes-St. Lawrence Forest Floral Region falls within his Humid Microthermal Climatic Province with suitable temperatures although somewhat less (but adequate) precipitation. The Deciduous Forest Floral Region is included by Thornthwaite in the latter province but, botanically at least, gives strong indication of being a northern outlier of his warmer Humid Mesothermal Climatic Province. The northern (parklands) part of the Prairie Grasslands and Parklands Floral Region coincides in general with the Sub-humid Microthermal Climatic Province (temperatures suitable, precipitation usually adequate) while the southern part falls within his Semi-arid Microthermal Climatic Province (temperatures suitable but precipitation usually deficient and limiting plant growth). Large parts of the western floral regions fall within Thornthwaite's Wet (Coast Forest) and Humid (interior forests) Microthermal Climatic Provinces. The remarkable Dry Interior of British Columbia, a broad belt extending northward to Kamloops and beyond, is placed in his Sub-humid Microthermal Climatic Province but is undoubtedly a continuation northward of his Semi-arid Microthermal Climatic Province with deficient precipitation. Rainfall at Kamloops during the growing season is usually less than five inches. Sagebrush (*Artemisia tridentata*), antelope-brush (*Purshia tridentata*) and western yellow pine (*Pinus ponderosa*)

are characteristic plants of this dry belt. It should be remembered that Thorntwaite's map comprises broad generalizations because of the extensive area covered. He did not attempt to show local differences. Concerning local refinements of the Climatic Provinces as illustrated in the Gaspé Peninsula of Quebec, see Scoggan (1950, p. 17).

Hours of Daylight.—A third climatic factor should be mentioned, namely, length of daylight. Being chiefly 'long-day' plants, arctic and alpine species are able to complete their annual life cycle during the relatively short snow-free growing season because of the long period of daylight during the arctic summer or at high altitudes farther south. They flower rapidly in their natural habitat but flowering is inhibited if they are transplanted or grown from seed in lower latitudes or altitudes. On the other hand, many southern species are 'short-day' plants and will produce flowers only in the autumn when days become shorter. However, by an artificial shortening of the exposure to daylight, they may be made to bloom at the beginning of summer.

Plant Distribution

In addition to the climatic factors that obviously influence the distribution of plants, there are other factors such as soil composition, biotic factors (genetical constitution and competition with other plants), and historical factors (glaciation and post-glacial submergence) that greatly modify what should otherwise be rather regular plant distributional patterns. These factors are discussed concurrently, because the attempted explanation of some of the most interesting problems of plant distribution in Canada involves their mutual interplay.

Practically the whole of continental Canada was at one time or another covered by ice-sheets during the Pleistocene era, now believed by many geologists to have terminated not more than about 10,000 or 15,000 years ago. In addition, large bodies of fresh water, dammed up by the retreating ice-fronts, made plant immigration impossible for long periods of time following the glaciation. Glacial Lake Agassiz, for example, the forerunner of the present-day Lakes Winnipeg, Manitoba and Winnipegosis, at one time covered the entire Manitoba Lowlands, extending at its maximum to approximately 55° N and including the upper part of the present Nelson River system. It is estimated to have covered the present site of Winnipeg to a depth of 600 feet at the time of formation of its highest beach. The flat, smooth topography of the Manitoba Lowlands is the result of the deposition of silts and clays in Lake Agassiz, which, during its various phases of drainage, established the many beaches now traceable along the Manitoba Escarpment as gravel ridges or wave-cut terraces.

In Manitoba, then, the period available for recolonization of extensive parts of the land by plants may be of the order of only about 5,000 years. Concerning deglaciation of the region north of the Great Lakes, Terasmae (1960) notes that radiocarbon dating suggests that the North Bay outlet, by which the melted water was discharged to the east by way of the Mattawa and Ottawa river valleys, opened about 10,000 years ago. It appears definitely established that entire plant associations can migrate at a relatively rapid rate into new territory when not competing with other associations.

It is interesting to note along the shores of the eastern Great Lakes such typical coastal halophytes as sea-rocket (*Cakile edentula*), beach-pea (*Lathyrus japonicus*) and seaside-spurge (*Euphorbia polygonifolia*), evidence that the post-glacial Lake Champlain allowed waters of the Atlantic Ocean to reach this far inland before isostatic recovery of the land from its tremendous load of ice. Potter (1932) and LaRocque (1949) have used halophytic plants as one of their criteria in discussing the possibility of a post-Pleistocene marine connection between James Bay and the Champlain Sea. Schofield (1959) discusses the salt-marsh vegetation of Churchill, Man., and its phytogeographic implications.

Hultén (1958) has published 278 excellent maps showing the distribution of "amphi-Atlantic" species (those that occur chiefly off the eastern and western edges of the Atlantic Ocean but are elsewhere usually of rather limited range). Many of these species are

extremely localized in eastern North America. Conversely, an orchid, the hooded ladies'-tresses (*Spiranthes romanoffiana*), is of transcontinental range in North America, with a few 'relic' stations in Ireland and northern Scotland. He believes that amph-Atlantic species were formerly essentially circumpolar, with their area reduced by the last glaciation to the present one. Many of these species are apparently identical on both sides of the Atlantic but some are represented in one of the areas by closely related but morphologically distinct species or varieties, in this latter case forming pairs of 'vicariads' or corresponding but geographically widely separated forms.

Hultén (1960) has also published maps showing the ranges of 228 circumpolar plants, most of which occur in Canada (a few only in the United States in North America). He had previously published (1937) a treatise with maps entitled *Outline of the History of Arctic and Boreal Biota during the Quaternary Period*, dealing with "their evolution during and after the glacial period as indicated by the equiformal progressive areas of present plant species". His Plate 11 of North Beringia Radiants, for example, superimposes upon one another the ranges of 28 species of plants supposedly derived from an original "centrum" in the Bering Sea region. Of these, those still confined to Alaska are only slightly differentiated from similar more widespread species found elsewhere, and are considered by Hultén as doubtless young species that have arisen probably not earlier than during the last inter-glacial period. Mountain avens (*Dryas integrifolia*) and three-toothed saxifrage (*Saxifraga tricuspidata*), however, now range across Canada to Greenland, and, being extremely characteristic and well differentiated, must be very old species. Their areas were reduced during the several phases of glaciation but they still had large areas at their disposal, spread from there during inter-glacial phases and, following the last ice-sheet, the Wisconsin, have spread southward over the formerly glaciated area. Hultén's Plate 16, likewise, indicates the probable derivation of 74 "Western American Coast Radiants" from a centrum in the Bering Sea region, while his Plate 17 indicates a similar centrum for species some of which now range as far east as Manitoba and Ontario. Such work is of great interest in helping to solve problems of migration of Canada's plants, being reflected in Sheet 38 of the *Atlas of Canada* (1937), compiled by A. E. Porsild and the present writer, showing the "progressive areas" in Canada of several species in each of the following groups: high-arctic; arctic; Arctic Archipelago endemics; eastern Arctic endemics; western Arctic endemics; arctic-alpine; low-arctic; amph-Atlantic (northern element); amph-Atlantic (southern element); amph-Beringian; boreal forest; Pacific coast; prairie and foothill; and disjunct species.

Concerning this sheet of maps, Porsild (1958) writes: "When the ranges of the plants of which the flora of Canada is composed are plotted on maps, it at once becomes clear that the species may be sorted into regional groups having similar ranges. Climate, soil and topography affect the local ranges of the species within the groups, but the groups themselves obviously have a common historical background. Some species thus have a distinctly eastern and some a distinctly western range, others are wide-ranging, whereas still others again are peculiar or endemic to smaller and restricted areas". He notes that many North American plants occur also in Eurasia (often their main area) and that many plants of northwestern North America also occur in eastern Asia, these plants having been present in North America before the ice age because a wholesale transatlantic migration in post-glacial time was impossible.

The areas of North America generally accepted as having served as plant refugia during at least the last stage of Pleistocene glaciation are large parts of Alaska and Yukon, the northern tip of the Queen Charlotte Islands, some alpine regions of British Columbia, the northern islands of the Arctic Archipelago, and probably at least some of the higher mountains of Labrador, these together forming a 'rainbow' within whose hollow plant life was virtually eliminated.

Much interest was aroused among plant geographers by the publication by Fernald (1925) of a lengthy paper entitled *Persistence of Plants in Unglaciated Areas of Boreal America*. Fernald pointed out that the Gulf of St. Lawrence region (particularly the calcareous plateau of the Long Range of western Newfoundland and the calcareous sea-cliffs

and river-gravels of the Gaspé Peninsula of Quebec) included in its flora a large number of species separated from their main area in the western Cordilleras by more than two thousand miles. Mountain avens (*Dryas drummondii*), for example, occupies a large area extending from north-central Alaska to Great Bear Lake and Lake Athabasca south to Oregon and Montana. It is known otherwise only from Quebec (Gaspé Peninsula; Anticosti Island; the North Shore of the Gulf of St. Lawrence; Lake Mistassini) and western Newfoundland, with an intermediate station in the 'driftless' region about the Great Lakes (Slate Island, Lake Superior). Fernald lists a large number of additional western and endemic (of local or restricted range) species centring about the Gulf of St. Lawrence, the endemics being mostly very closely related to their western counterparts.

Fernald's contention, later known as the *nunatak theory* (from the Eskimo word for a mountain projecting out from an ice-cap), was that the areas in which these western plants or representatives of western plants are found today escaped glaciation during Pleistocene times, the plants surviving there as relicts but being wiped out more westerly as far as the Cordilleras, except often for stations in the driftless area about the Great Lakes known to have escaped glaciation. This theory appeared, at the time, to provide a most satisfactory explanation to many puzzling problems of plant distribution in Eastern Canada. However, field investigations have since drastically reduced the number of species with such disjunct areas, although the problem posed by the remaining "Cordilleran" species in the east still remains.

The extreme localization in Eastern Canada of many of the western species seemed to Fernald to be proof of a more or less senescent condition attendant upon their great age. They appeared to have lost the capacity to migrate, if not actually to propagate sufficiently for continued survival. However, Marie-Victorin (1938) pointed out that several western plants, when grown in limestone beds at the Montreal Botanical Garden, increased their area and thrived vigorously until crowded out by weeds at the termination of the experiment. It had already been noted by several botanists, including Griggs (1934a; 1940), that weeds are often found in the same habitat as rare plants. Species of both groups are adapted to survive on such typical rare plant habitats as unstable sea-cliffs and river-gravels but would be eliminated if the erosion cycle were able to reach a stage permitting establishment of the normal forest flora of the region. The rare plants share the sun-loving character of weeds. The limestone cliffs, because of their splintered and angular type of weathering (with formation of extensive talus slopes at the base) will still bar conquest by the forest for an indefinite period. The rare plants, like the weeds, appear as a whole to be quite as well equipped for seed or spore dispersal as many plants of more widespread occurrence but are quite unable to withstand competition with the forest species.

Wynne-Edwards (1937) notes the very significant fact that eastern Canadian plants of western affinity are found almost entirely upon calcareous or magnesian rocks of a basic reaction, as opposed to the siliceous, acidic rocks of the Canadian Shield. Such calcareous formations are characteristic of the Cordilleras, the Arctic Archipelago, and the mountains of northeastern Labrador (and also the driftless area about the Great Lakes), the whole pattern coinciding quite neatly with the rainbow-shaped area attributed above to non-glaciated regions of Canada. He believes that the disjunct ranges of the rare plants are better explained as resulting from their lime-loving nature rather than from differences in their Pleistocene history.

The rare plants as a whole appear to be quite as well equipped for seed or spore dispersal as most plants of more widespread occurrence. The minute spores of the rare ferns are as definitely adapted to wind distribution as those of all ferns. The cotton-tufted seeds of the willows and the plumed fruits of mountain avens (*Dryas drummondii*) furnish almost equally good examples. Their restricted area in the east would seem to be a result of the scarcity of suitable habitats rather than of a state of senescence because of old age. The tables given by Scoggan (1950) showing the results of determinations of available

calcium and hydrogen-ion concentration in water collected in various regions of eastern Quebec illustrate the striking difference in chemical nature between calcareous and acidic rock formations.

Porsild (1955) also refers several of the discontinuous distributions of Arctic species to soil factors: "A glance at maps showing the distribution of certain North American species will at once disclose that many obligate calciphiles are absent from the acid Archaean rocks of the Laurentian Shield area (e.g., *Braya humilis* and certain other species in the *Cruciferae*) but are found on the younger and largely Palaeozoic sediments around the periphery of the Shield. On the other hand, a large number of typically oxylophytic species, notably among the *Ericaceae* and among ferns and fern-allies, may be ubiquitous on the acid rocks of the Shield but absent on the surrounding calcareous sediments. Edaphic discontinuity is even more pronounced in the Arctic, where, because of climatic conditions, such as low temperatures and low precipitation, organic soils in the form of humus, turf, or peat bogs are either lacking or at best feebly developed. . . ."

"In the Arctic, the problem of edaphic discontinuity is further complicated by the fact that warmth-loving plants near the northern limits of their ranges tend to become facultative calciphiles, often confined to stony, calcareous soils. The reason may be that these soils alone afford them optimal physical conditions of temperature, water supply, and aeration." Further elaboration of this and other aspects of arctic ecology is given in papers by Griggs (1914; 1934) and Raup (1941).

A noteworthy characteristic of the rare eastern limestone floras is their variability in species from one station to another, in contrast with the more or less uniform old-established flora to be expected on the basis of the nunatak theory. As noted by Wynne-Edwards, this would result from the relatively short time during which recolonization of the scattered stations has been in progress, or, in some cases, from reduction to the last and coolest habitats. He also believes that the presence of endemics in the arctic-alpine flora of eastern North America offers no positive evidence in support of the nunatak theory. Rather than indicating great age of the flora, this phenomenon can be better correlated with the specialized soil preference of the plants. Their invasion of an area must progress by leaps from one suitable habitat to another, and a station may sometimes be colonized by the progeny of a single seed, an ideal condition for the segregation of different types. Palmgren (1929), in a paper entitled *Chance as an Element in Plant Geography*, writes, "It depends in a high degree on chance whether a plant will succeed in gaining a foothold in time, before the vegetation becomes closed and a more or less effective obstacle to the entering of new elements is established. . . . A rare species may be found on a certain spot, but is wanting in other quite similar places in the neighbourhood". This is supported, in the case of the rare plants of the Gaspé Peninsula of Quebec, by a table constructed by the writer (Scoggan, 1950, p. 24) noting the occurrence (presence) of 125 calciphilous species in 10 typical sea-cliff and 10 typical river-gravel habitats. Almost half of the 109 sea-cliff species were found in only one or two of their ten stations and over a third of the 80 river-gravel species were found in only one or two of their stations. Over half of the total of 125 species were found in not more than four of the 20 stations. This is in sharp contrast to more stabilized and crowded communities such as those of the climax forest or the heath bog. The uniform ericaceous flora of heath bogs has been noted in the discussion of the Boreal Forest Floral Region. In such a habitat, ground coverage is practically 100 p.c. and the ability to colonize is possessed by a specialized flora able to withstand strong competition and a highly acidic substratum.

It was Palmgren who introduced the concept of 'minimum area' into phytogeography, a concept that has since played an important part in the statistical analysis of vegetation. Its basic tenet is that, for a particular plant association, a certain minimum area is required before that association can comprise the requisite number of different species by which it is distinguished from other plant associations. Obviously, for the heath bog association, this minimum area will be relatively small. Most or all of the typical bog species will probably be found on any tenth of an acre tested. 'Presence' is high, each species occurring in nearly all sample stands of the community. 'Fidelity' is also high,

most bog species being more or less restricted to the acid heath bog habitat. In the case of the calciphilous plants, presence, as already noted, is low, but fidelity is high because of their restriction to calcareous habitats.

Greater youth even than the time dating from Wisconsin deglaciation seems to be a characteristic of the habitats of many rare plants. Wynne-Edwards has called attention to the necessity of accepting post-Wisconsin invasion in the case of certain typical Cordilleran species such as *Salix vestita*, *Dryas drummondii* and *Anemone multifida*, which are found on Anticosti Island and the Mingan Islands, places buried by the thick ice-sheet, as shown by grooves, striae and erratics, as well as submerged under the post-Wisconsin Champlain Sea. There is also strong geological evidence that at least some of the intermediate Great Lakes stations have undergone glaciation, as well as post-glacial submergence.

Attention might be drawn at this point to the occurrence on the serpentine tableland of Mount Albert, in the Gaspé Peninsula, Que., of a flora obviously specialized to the serpentine habitat. The writer (1950) lists 17 species of this area. The ability to survive on serpentine is apparently restricted to a rather few species (or ecotypes of the species) and many plants that are aggressive outside the serpentine area cease immediately at its boundary. Rune (1954) notes that the infertility of serpentine soils is due not only to their low nutritional content but also to their comparatively high content of nickel and chromium, a factor toxic for most plants.

The question of polyploidy (multiplication of the basic chromosome number) in relation to plant distribution merits some attention. A 'diploid' is a plant or animal whose body cells contain paired chromosomes, the total number of chromosomes being twice that found in the sex cells. A 'polyploid' is a plant or animal whose body cells contain three or more times the number of chromosomes characteristic of the sex cells. The theory has been advanced that severely cold climates may induce the formation of polyploids. There is evidence to show that, in general, polyploids are more hardy than diploids, and that they are more abundant in high northern regions.

The probability is that some of the rare species may consist of only one or a few polyploid 'ecotypes' unable to survive except under the peculiar conditions to which they are adapted. The hardships to which they were subjected while being forced southward by the Wisconsin ice-sheet may have substantially depleted the biotype stock, and subsequent inbreeding may in some cases have further sharply defined the species from ancestral types. According to Stebbins (1942), certain of these ecotypes may have been eliminated through combinations of recessive genes expressing themselves phenotypically as non-adaptive characteristics.

Löve and Löve (1949) have discussed *The Geobotanical Significance of Polyploidy*, giving in their summary 20 of the general features of polyploids, among which are an increase in polyploids with higher latitude or altitude, an increased adaptability of polyploids to climatic extremes of temperature and moisture, and a high frequency among glacial survivors in Scandinavia, Iceland and Spitsbergen.

According to Cain (1940), "With respect to the effects of glaciation, we may suppose a history somewhat as follows: In the general vicinity of the glacial boundary old diploid species, formerly well isolated, are brought together because of the vicissitudes of forced migrations. In such a region, especially after glacial recession has commenced, there are numerous new, variable and closely associated habitats in which populations of a variety of species can live in rather close proximity. The result of this intermingling of species may be the production of hybrids, followed sometimes by amphidiploidy. With continued glacial recession, the polyploids and backcrosses are in a position to expand their area tremendously. Some of the diploids also may extend far onto the glacial plain, but most of them will probably have only a limited expansion. The chances of such polyploids spreading into unglaciated territory to any considerable extent seem unlikely because penetration of closed communities is more difficult".

Camp (1944) expresses the opinion that "*East of the Continental Divide, V. ovalifolium* is a Pleistocene adventive, but with a series of disjunct (relic) stations the result of post-Wisconsin-times events...". The viewpoint expressed here is possibly applicable to various species in other groups, primarily western in distribution, which have eastern disjunct outposts. The great series of terminal and recessional moraines with their unsorted and talus-like materials—and at particular stages in the climatic and vegetation succession during each recovery of the floristic mantle—must have been ideal avenues for transcontinental plant migration. In any event, this broad morainic belt would have served as an ideal refugium south of the ice for those rare plants that, even today, are confined chiefly to the unstable sea-cliff and river-gravel habitats, free from invasion by the forest species that have crowded them out elsewhere. It may be that some of the less hardy rare plants used this southern migration route for their eastern migration after being eliminated in the broad intervening area, while the hardier ones persisted and accompanied the arctic circumpolar species in their southward march before the advancing Pleistocene ice-sheets. In advancing what has become known as his "rainbow theory", Marie-Victorin (1938) writes, "May not most of the so-called Cordilleran plants be just arctic migrants that for some reason or other have become extinct in the Arctic and have persisted at one or both ends of their migrating trails". Wynne-Edwards had already pointed out that the simple fact emerges that the flora of the arctic and subarctic zones of North America is made up of types that are circumpolar and types that are not circumpolar, and further that "Some of these plants have wide limits of climatic tolerance, occurring through a wide latitudinal range, in which case their American distribution takes the form of an arch spanning the continent from the Cordillera to the St. Lawrence by way of the Arctic; while others are more narrowly confined, the hardest occupying the crown of the arch and least hardy its two ends, whereby their ranges are disrupted into western and eastern centres".

The Atlantic Coastal Plain element in the flora of Newfoundland and Nova Scotia again emphasizes the importance of historical factors in the consideration of problems of plant distribution. Fernald (1918) notes the occurrence especially in sandy areas and acid bogs of Newfoundland of such characteristic species of the Coastal Plain of New England and New Jersey as the small grass-like fern, curly-grass (*Schizaea pusilla*), beachgrass (*Ammophila breviligulata*), various sedges, pipewort (*Eriocaulon septangulare*), a rush (*Juncus pelocarpus*), white fringed orchid (*Habenaria blepharoglottis*), broom-crowberry (*Corema conradii*), beach-heath (*Hudsonia ericoides*), huckleberry (*Gaylussacia dumosa*) and two asters (*Aster nemoralis* and *A. radula*). Surprising, however, is the absence in Newfoundland of such typically eastern Canadian plants as virgin's-bower (*Clematis virginiana*), common milkweed (*Asclepias syriaca*), large-toothed aspen (*Populus grandidentata*), striped maple (*Acer pensylvanicum*), sugar-maple (*Acer saccharum*), thoroughwort (*Eupatorium perfoliatum*) and certain goldenrods (*Solidago juncea* and *S. squarrosa*) and asters (*Aster acuminatus* and *A. macrophyllus*). He also notes a similar absence of the common moose, red deer, porcupine and spruce partridge, animals of the forests of the relatively close Canadian mainland to the west. Fernald advances the following explanation: "... the flora of Newfoundland, except such species as have been derived across the narrow Straits of Belle Isle, has not reached the island by ocean currents or by winds, especially from the west and southwest; for, if these factors were of importance in carrying the western and southwestern plants to Newfoundland, we should expect such species as I have named and which are all abundant at the eastern edge of Canada to have reached Newfoundland amongst the first invaders. In explaining the migration to Newfoundland of a large element from the Atlantic coastal plain of the United States it has been necessary to reconstruct the Tertiary continental shelf, which is now depressed as a shallow bench off the Atlantic coast of America; and from the botanical and zoological evidence, as well as from recently published geological evidence, it now seems perfectly settled that the continental shelf formed in the late Pleistocene and even later a nearly continuous although somewhat interrupted floor from New Jersey and southern New England, by way of Sable Island and the Grand Banks, to southern and eastern Newfoundland. And upon this floor the southern flora and fauna migrated to Newfoundland; but the unfavorable conditions of a sand-floor

with meager forest and coastal plain bogs and barrens proved unattractive to the life of our rich Canadian forest, with the result that the forest species of both animals and plants, or the species which demand rich or basic soils, were for the most part unable to cross to Newfoundland."

The Carolinian flora of southern Ontario has been the subject of a number of studies by Fox and Soper (1952-54) and Soper (1956; 1962). Soper and Maycock (1962) have investigated the phytogeography of an area along the north shore of Lake Superior, finding that most of the northern species appear to have an extensive gap in their range between that region and the shores of Hudson Bay and James Bay. They conclude that "The gap seems to be reasonable in terms of the flat lands of the northern Clay Belt and the boggy regions of the Hudson Bay Lowlands. Undoubtedly these species may eventually be discovered in other scattered localities in these central areas, but it is reasonable to assume that the disjunct nature of the distributions finds a counterpart in the lack of suitable environmental situations in those regions". The plants referred to are characterized by their preferences for open, rocky habitats free from forest competition, a condition analagous to that discussed above for the rare Cordilleran species of Eastern Canada, although the Lake Superior cliffs are the acidic Precambrian granites and gneisses of the Canadian Shield. Their smooth, rounded weathering and scarcity of soil are undoubtedly responsible for holding the forest in check.

Doris Löve (1959) has concluded that all of the vegetation of Manitoba was obliterated during the Wisconsin Ice Age (one of the phases of the Pleistocene epoch): that a grassland followed the ice withdrawal and a 'marsh-grassland' developed about 10,000 years ago (according to radiocarbon dating of wood from peat deposits of this stage) on the Lake Agassiz bottom following the drainage of its first stage toward the south; that a deciduous forest of elm, ash and aspen later developed around the shores of the second stage of Lake Agassiz; and that a western and southwestern prairie flora composed of various grasses, legumes and composites invaded the lake bottom following its final drainage northward into Hudson Bay while an arctic flora migrated southward and spruce forests spread over the Precambrian Shield, the forest penetrating during the last 2,000 years to invade the aspen belt and produce the present mixed forest. The past century has seen the transformation of the major area of prairie and marshland into a rich farm land. Ritchie (1956; 1957) has published the results of studies on the vegetation of northern Manitoba. He suggests tentatively in a later paper (1964) interpreting pollen spectra of the Riding Mountain area of southern Manitoba that "... the upland sites of the area were occupied by an initial closed forest, followed by a more or less closed treeless episode characterized by grassland vegetation, replaced by a deciduous forest episode with birch, poplar, and oak, culminating in a mixed spruce-deciduous forest closely similar to the vegetation of today". Earlier studies on the vegetation or ecology of the Prairie Provinces are noted by Adams (1936), but the paper entitled *Ecology of the Aspen Parkland of Western Canada*, by R. D. Bird (1961), deserves special notice.

Recent Botanical Publications

The earliest major floristic works dealing with the ferns and flowering plants of Canada were *Flora Boreali-Americana*, published in 1803 by André Michaux; *Flora Americae Septentrionalis*, published in 1814 by Frederick Pursh; and *Flora Boreali-Americana*, published between 1829 and 1840 by Sir W. J. Hooker. These were followed, between the years 1883 and 1890, by the appearance of John Macoun's *Catalogue of Canadian Plants*, a remarkable achievement for the day and a stimulus for greatly expanded botanical exploration.

Five provincial *Floras* in manual form are now available, with 'keys' for the identification of species. These are: *The Flora of Nova Scotia* by A. E. Roland (1947); *Flora laurentienne* (southern Quebec only), by Frère Marie-Victorin (1935—with a 1947 supplement of additions and corrections by Ernest Rouleau); *The Flora of Manitoba* by Homer J. Scoggan (1957); *Flora of Alberta* by E. H. Moss (1959); and *Flora of Southern British Columbia and Vancouver Island* by J. K. Henry (1915). Porsild (1957) published an *Illustrated*

Flora of the Canadian Arctic Archipelago and Hultén published *Flora of Alaska and Yukon* between the years 1941 and 1950. Mention should also be made of the excellent little manuals, *Wild Plants of Canada*, by Spotton, Cosens, and Ivey (1931), the handbook of selected native plants by Montgomery (1961) entitled *Wild Plants of Canada*, and *Wild Plants of the Canadian Prairies* by Budd (1957). United States manuals also furnish sources for the identification of Canadian plants. The most useful of these for Eastern Canada are those by Fernald (1950), Gleason (1958), and Gleason and Cronquist (1963); for Western Canada, those by Rydberg (1922; 1932), Abrams (1923-59) and Hitchcock *et al.* (1955-64).

Hugh Raup has conducted extensive floristic and ecological investigations in the Northwest, one of his major publications being *The Botany of Southwestern Mackenzie*, published in 1947, with numerous maps. Hustich has conducted such investigations in the Labrador-Ungava Peninsula. Similar publications and checklists (in addition to those published before 1945 and noted in Senn's 1945 revision of the 1936 paper by Adams) include those by the following authors: Rouleau (1956—whole of Newfoundland); Erskine (1960—whole of Prince Edward Island); Scoggan (1950—Bic and the Gaspé Peninsula, Que., with identification keys); Baldwin (1958, 1959 and 1962—Clay Belt and Boreal Forest region of Ontario and Quebec); Montgomery (1945—Waterloo Co., Ont.); Core (1948—Erie Archipelago); Soper (1949—southern Ontario); Gillett (1958—Ottawa district, Ont.); Landon (1960—Norfolk Co., Ont.); Löve and Bernard (1959—Otterburne district, Man.); Scoggan (1959—Churchill district, Man.); Breitung (1957—whole of Saskatchewan); Eastham (1947—supplement to Henry's 1915 British Columbia manual, with descriptions of the added species); and Porsild (1951, 1955 and 1959—southeastern Yukon, Western Canadian Arctic Archipelago and the National Parks of Alberta, respectively).

Other lists, mostly of smaller areas and too numerous to mention here, may be found in the botanical periodicals, particularly the *Canadian Journal of Botany*, *Contributions of the Gray Herbarium of Harvard University*, *Le Naturaliste canadien*, the *Canadian Field-Naturalist*, *Rhodora*, the *Transactions of the Royal Canadian Institute*, and publications of the Canada Department of Agriculture. Special mention should be made of the numerous and lengthy checklists of the flora of the Ungava and the James Bay regions made by the individuals or team of A. Dutilly, E. Lepage and M. Duman and published in *Le Naturaliste canadien* or as contributions of the Arctic Institute of the Catholic University of America.

Cody (1956) published a manual of the ferns of the Ottawa district and Dore (1959) one of the grasses of the same area. An indispensable tool for the student of grasses is *Manual of the Grasses of the United States* by A. S. Hitchcock and Agnes Chase, the latest edition of which was published in 1951. The Forestry Branch of the federal Department of Northern Affairs and National Resources published a revised edition of *Native Trees of Canada* (1956—with maps). Roland and Benson (1955) contributed a *Summer Key to the Woody Plants of Nova Scotia*. Cunningham (1958) published a collection of photographs of Canadian forest plants, with notes on their distribution. Weeds of Canada were dealt with by Frankton (1955) and Montgomery (1964). Eva Beckett (1959) published a list of the introduced plants of Churchill, Man.

The writer, following many summers 'in the field' throughout Canada, is making use of the above sources of information in the preparation of a manual *Flora of Canada* in which an attempt is being made to summarize present floristic knowledge of the ferns and flowering plants of the country. It is estimated that about 4,800 species will be involved, comprising about 965 genera distributed among 150 families. Particular attention is being given to the construction of workable identification keys, and notes will be given on the synonymy, ecology, ranges in the various provinces, and geographical distribution of each species. Stimulus was given to this project by the holding of the Ninth International Botanical Congress in Montreal in 1959, when botanists from all over the world came together to discuss problems, present papers, amend the rules of botanical nomenclature, and go on botanical tours throughout the country. Canadian botanists profited greatly from this mass contact with their professional colleagues.

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PART III.—CLIMATE AND TIME ZONES

Section 1.—Climate*

Just as there are great differences in the weather throughout Canada at any given instant, there are also many climates. These climates are not unique but are similar to those in Europe and Asia extending from the Arctic down to the mid-northern hemispheric latitudes. Because Canada is situated in the northern half of the hemisphere, most of the country loses more heat annually than it receives from the sun. The general atmospheric circulation compensates for this and at the same time produces a general movement of air from west to east. Migrant low pressure areas move across the country in this "westerly zone", producing storms and bad weather. In intervals between storms there prevails the fair weather associated with high pressure areas.

Although the movement of migrant high and low pressure systems within the zone of the westerlies is the most significant climatic control over Canada, the physical geography of North America contributes greatly to the climate. On the West Coast, the western Cordillera limits mild air from the Pacific to a narrow band along the coast, while the prairies to the east of the mountains are dry and have extreme temperatures because they are shielded from the Pacific Ocean and are in the interior of a large land mass. In addition, the prairies are part of a wide north-south corridor open to rapid air flow from either north or south which often brings sudden and drastic weather changes to this interior area. On the other hand, the large water surfaces of Eastern Canada produce a considerable modification to the climate. In southwestern Ontario winters are milder with more snow, and in summer the cooling effect of the lakes is well illustrated by the number of resorts along their shores. On the East Coast, the Atlantic Ocean has considerable effect on the immediate coastal area where temperatures are modified and conditions made more humid when the winds blow inland from the ocean.

The following table gives temperature and precipitation data for typical stations in the various regions of Canada. Temperatures in this table refer to observations taken in a thermometer shelter which has been placed in a representative location with the thermometer bulbs four feet above the surface of the ground. Mean January and July temperature data are based on records over the 30-year period from 1921 to 1950 except for far northern stations where the available period of record is shorter. After an average temperature is obtained for each day in January over a 30-year period, the mean January temperature may be arrived at by striking a mean of these 930 daily values. The mean July temperatures may be obtained in a similar manner. The highest and lowest temperatures on record refer to the absolute extremes for the entire period of record at each station. Average dates are shown for the last occurrence in spring of a temperature of 32°F. or lower and for the first occurrence in autumn of freezing temperatures at the four-foot level in the thermometer shelter.

The official Canadian rain gauge is a small cylinder in which the rain is caught and then measured to one hundredth of an inch with a simple measuring device. Freshly fallen snow is measured as it lies on the ground and recorded to the tenth of an inch. Total precipitation values as shown in the table are the sum of the total rainfall and one tenth of the total snowfall. For the purposes of this table, a day with precipitation is one on which at least one hundredth of an inch of rain or one tenth of an inch of snow has fallen.

* Prepared by the Meteorological Branch of the Department of Transport, Toronto. A comprehensive study on The Climate of Canada, also prepared by the Meteorological Branch, was carried in the 1959 Year Book, pp. 23-51. Supplementing that textual material, detailed tabulations of climatic factors for 45 individual meteorological stations across the country were carried in the 1960 Year Book, pp. 33-77. A reprint is available from the above source giving the complete textual and tabular data.

Temperature and Precipitation Data for Typical Stations in the Various Districts

District and Station	TEMPERATURES (Fahrenheit)						PRECIPITATION		
	Mean Jan.	Mean July	Highest on Record	Lowest on Record	Av. Dates of Freezing Temperatures (32°F. or Lower)		Total (All Forms) ¹	Snowfall	Av. Number of Days (All Forms)
					Last in Spring	First in Autumn			
							in.	in.	
Newfoundland—									
Island of Newfoundland—									
Belle Isle.....	11.0	48.6	73	—31	June 19	Sept. 24	33.19	98.8	152
Gander.....	18.6	61.6	96	—15	June 1	Oct. 3	39.50	119.2	194
St. Andrew's.....	22.9	59.7	81	—11	June 11	Sept. 28	42.47	54.8	156
St. John's.....	24.0	60.0	93	—21	June 2	Oct. 10	53.09	114.1	201
Labrador—									
Cartwright.....	4.2	55.2	97	—36	June 26	Sept. 9	40.31	200.6	165
Goose.....	0.8	60.5	100	—38	June 10	Sept. 14	28.66	140.9	164
Nain.....	—2.5	50.4	91	—37	July 3	Aug. 12	29.56	128.2	121
Maritime Provinces—									
Prince Edward Island—									
Charlottetown.....	18.8	66.6	98	—27	May 16	Oct. 14	43.13	112.7	156
Nova Scotia—									
Annapolis Royal.....	24.4	65.3	91	—12	May 20	Oct. 6	41.35	68.0	144
Halifax.....	24.4	65.0	99	—21	May 13	Oct. 12	54.26	64.1	159
Sydney.....	22.7	65.0	98	—25	May 29	Oct. 13	50.61	96.6	169
Yarmouth.....	27.0	61.6	86	—12	May 7	Oct. 14	47.08	83.1	151
New Brunswick—									
Chatham.....	12.7	66.5	102	—43	May 21	Sept. 28	36.71	88.5	152
Grand Falls.....	8.7	64.7	98	—46	May 28	Sept. 20	38.42	106.3	101
Moncton.....	16.1	65.8	99	—33	June 1	Sept. 14	40.97	108.4	130
Saint John.....	19.8	61.8	93	—22	May 4	Oct. 16	47.39	80.0	170
Quebec—									
Northern—									
Fort Chimo.....	—13.0	52.6	90	—51	June 25	Aug. 14	16.37	68.8	157
Knob Lake.....	—11.9	55.1	88	—59	June 21	Aug. 30	27.55	128.6	193
Nitchequon.....	—12.6	55.9	90	—57	June 14	Sept. 13	30.88	116.3	193
Port Harrison.....	—14.8	46.8	86	—57	July 5	Aug. 20	14.64	73.3	134
Southern—									
Bagotville.....	2.9	63.8	96	—46	June 1	Sept. 16	38.72	130.3	160
Father Point.....	10.8	58.4	90	—32	May 22	Sept. 26	33.56	108.0	147
Montreal.....	15.4	70.4	97	—29	Apr. 28	Oct. 17	41.80	100.8	160
Quebec.....	12.0	67.6	97	—34	May 11	Oct. 5	44.76	123.7	171
Sept Îles.....	3.2	59.2	90	—46	June 4	Sept. 10	41.94	165.5	149
Sherbrooke.....	14.8	67.8	98	—42	May 18	Sept. 23	38.93	97.2	176
Ontario—									
Northern—									
Kapuskasing.....	—1.3	62.8	101	—53	June 14	Sept. 5	27.99	95.8	142
Port Arthur—									
Fort William.....	7.6	63.4	104	—42	June 4	Sept. 7	31.62	93.4	137
Sioux Lookout.....	—1.3	65.0	103	—51	June 1	Sept. 15	27.45	74.5	157
Trout Lake.....	—11.9	61.2	95	—54	June 16	Sept. 15	24.74	85.1	146
Southern—									
London.....	22.5	69.6	106	—27	May 16	Oct. 1	38.24	78.0	160
Ottawa.....	12.0	68.6	102	—38	May 11	Sept. 29	34.89	80.5	145
Parry Sound.....	16.2	67.8	100	—39	May 15	Oct. 2	37.87	118.2	162
Toronto.....	24.5	70.8	105	—26	May 3	Oct. 15	30.93	54.6	143
Windsor.....	24.5	73.0	101	—27	Apr. 29	Oct. 15	33.43	35.8	139
Prairie Provinces—									
Manitoba—									
Churchill.....	—17.3	54.7	96	—57	June 28	Aug. 30	15.01	55.2	102
The Pas.....	—6.2	64.9	100	—54	May 30	Sept. 9	16.98	53.2	102
Winnipeg.....	0.6	68.4	108	—54	May 27	Sept. 15	19.72	49.4	119

¹ Total rainfall and one tenth of the total snowfall.

Temperature and Precipitation Data for Typical Stations in the Various Districts—concluded

District and Station	TEMPERATURES (Fahrenheit)						PRECIPITATION		
	Mean Jan.	Mean July	Highest on Record	Lowest on Record	Av. Dates of Freezing Temperatures (32° F. or Lower)		Total (All Forms) ¹	Snowfall	Av. Number of Days (All Forms)
					Last in Spring	First in Autumn			
Prairie Provinces—concl.							in.	in.	
Saskatchewan—									
Regina.....	2.3	66.6	110	—56	June 5	Sept. 6	15.09	40.1	113
Saskatoon.....	0.8	66.4	104	—55	May 24	Sept. 13	14.15	34.4	104
Swift Current.....	9.8	67.2	107	—54	May 27	Sept. 10	14.89	40.2	112
Alberta—									
Beaverlodge.....	9.7	60.2	98	—54	May 30	Sept. 1	17.32	68.2	127
Calgary.....	15.8	62.4	97	—49	June 3	Sept. 3	17.47	57.0	105
Edmonton.....	7.7	62.9	99	—57	May 29	Sept. 6	17.63	52.9	128
Medicine Hat.....	13.7	70.2	108	—51	May 15	Sept. 18	13.55	41.6	98
British Columbia—									
Pacific Coast and Coastal Valleys—									
Estevan Point.....	40.4	56.3	80	7	Apr. 3	Nov. 12	107.66	10.2	203
Langara.....	37.3	54.2	78	6	Apr. 2	Dec. 2	67.79	20.8	255
Prince Rupert.....	35.7	56.2	88	—6	Apr. 19	Nov. 3	94.00	32.1	229
Vancouver.....	37.6	61.4	92	2	Apr. 1	Nov. 5	56.83	24.5	179
Victoria.....	39.2	60.0	95	—2	Feb. 28	Dec. 7	26.18	10.1	149
Southern Interior—									
Glacier.....	13.6	57.9	98	—32	June 10	Sept. 8	52.24	342.5	192
Invermere.....	13.3	63.1	99	—43	May 27	Sept. 12	11.52	30.2	92
Kamloops.....	22.3	70.4	107	—37	Apr. 25	Oct. 8	10.14	29.4	83
Penticton.....	26.7	68.7	105	—16	May 7	Oct. 3	11.50	25.4	109
Princeton.....	17.1	63.1	107	—49	June 11	Sept. 4	13.30	49.2	105
Central Interior—									
Barkerville.....	16.0	54.5	96	—52	June 25	Aug. 16	43.83	220.4	187
McBride.....	17.2	59.2	100	—50	June 18	Aug. 23	19.73	74.2	125
Prince George.....	14.6	59.6	102	—58	June 17	Aug. 24	22.16	66.5	166
Smithers.....	15.7	58.8	92	—47	June 22	Aug. 11	19.09	67.1	147
Northern Interior—									
Atlin.....	4.6	53.8	87	—54	June 11	Sept. 4	11.01	46.4	70
Dease Lake.....	3.6	54.4	93	—60	July 2	Aug. 13	15.29	66.7	144
Fort Nelson.....	—7.3	61.7	98	—61	May 24	Sept. 2	16.37	66.8	115
Fort St. John.....	5.2	61.1	92	—53	May 25	Sept. 1	14.94	62.5	122
Smith River.....	—6.0	56.8	92	—74	July 2	Aug. 11	18.14	75.4	151
Yukon Territory—									
Dawson.....	—16.0	59.8	95	—73	June 4	Aug. 21	12.73	52.5	119
Snag.....	—13.2	56.8	89	—81	June 17	Aug. 7	13.82	52.8	109
Watson Lake.....	—7.6	58.7	93	—74	June 1	Aug. 25	16.75	77.0	141
Whitehorse.....	5.2	56.2	91	—62	June 10	Aug. 27	10.66	44.2	92
Northwest Territories—									
Mackenzie Basin—									
Fort Good Hope.....	—21.0	59.8	95	—69	June 14	Aug. 6	12.18	57.3	110
Fort Simpson.....	—15.1	62.4	97	—69	June 4	Aug. 28	12.13	45.2	97
Hay River.....	—11.6	59.8	96	—62	June 11	Sept. 7	12.02	46.8	99
Barrens—									
Baker Lake.....	—30.0	50.5	82	—58	July 2	Aug. 24	6.74	21.8	71
Chesterfield.....	—25.6	48.0	86	—60	June 30	Sept. 4	11.12	51.5	96
Coppermine.....	—19.0	49.0	87	—58	June 28	Aug. 18	10.87	55.5	105
Arctic Archipelago—									
Clyde.....	—15.3	40.1	71	—47	2	2	10.04	69.4	89
Eureka.....	—36.3	41.9	67	—63	June 25	Aug. 10	2.61	13.9	50
Frobisher Bay.....	—15.8	45.7	76	—49	June 24	Aug. 27	13.53	73.1	104
Mould Bay.....	—28.9	38.0	59	—63	2	2	3.25	19.1	74
Resolute.....	—28.2	39.7	61	—61	2	2	5.28	28.0	93

¹ Total rainfall and one tenth of the total snowfall.² No appreciable period free from frost.

Section 2.—Meteorological Observing Stations*

In January 1965, official meteorological observations were taken and recorded at some 2,209 weather reporting stations in Canada. There are several different classes of stations, ranging from the first-order reporting stations at airports where hourly observations of all aspects of the weather are recorded, to the co-operative precipitation observing stations where a volunteer observer makes daily observations of rainfall and snowfall. While there are vast areas of the country where the weather stations are several hundred miles apart, most of the settled parts of the country are represented by first-order hourly reporting stations every 100 miles or so, and by co-operative climatological observing stations at least every 25 miles.

At most of the 238 first-order synoptic stations complete weather observations are made every six hours and at a large percentage of them only slightly less complete observations for aviation forecasts are made every hour. These weather data, including information on temperature, precipitation, pressure, wind, humidity, cloud and visibility, are sent first by radio and teletype to the different weather offices across the Continent to be used for weather forecasting purposes, and then at each month-end the manuscript reports are sent by mail to Meteorological Branch Headquarters for use in compiling climatic statistics. At some 90 of these observing stations, personnel of the Telecommunications Branch of the Department of Transport take weather observations as part of their scheduled duties, and 35 stations are operated in a similar manner by the different Armed Services; 70 stations are operated by Meteorological Branch personnel and the remainder are operated under contract, mainly by various transportation and communications companies.

Twice daily at 35 locations throughout the country, complete upper air observations are made from the surface to altitudes upwards to 100,000 feet. Pressure, temperature and humidity measurements are determined by radiosonde instruments carried aloft by balloons and the information reported by radio to the ground receiving station; winds are determined by observing the drift of the balloon by means of radar or radio direction finding ground equipment. There are also 26 other locations where the winds in the lower layers of the atmosphere are determined by observing free balloon drift by means of a theodolite or by radar. As in the case of the first-order synoptic reporting stations, these upper air weather observations are made available immediately to forecast offices for weather forecasting purposes, and the manuscript reports are collected at Meteorological Branch Headquarters for compilation of climatic statistics.

About 1,256 weather observing stations in Canada are classified as climatological stations where the observers record temperature extremes and precipitation once or twice daily and send in monthly data sheets. Most of these observers serve on a voluntary basis and willingly spend several hours a month on their hobby. In addition, many governmental and industrial organizations such as agricultural experimental farms and power companies have incorporated brief climatological duties into the general work of some of their employees. These climatological stations have contributed much useful information on temperature and precipitation for publication by the Meteorological Branch.

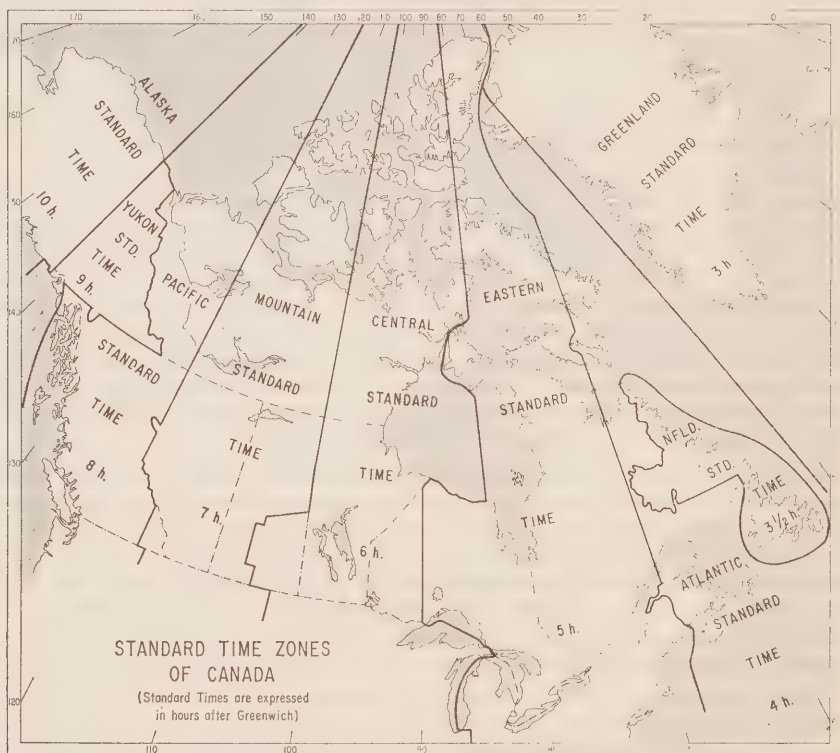
There are about 595 stations classified as precipitation stations where rainfall and snowfall only are observed and recorded. Since precipitation varies more rapidly than temperature over short distances, a dense network of these stations is required, especially in large urban areas. Finally, there are about 89 miscellaneous stations where observations of wind, sunshine and temperature are taken for special purposes. In all, the number of weather stations in Canada has been growing at an average rate of more than 50 a year for the past decade and thus a steadily increasing climatic intelligence is assisting Canadians in all economic pursuits.

* Prepared by the Meteorological Branch, Department of Transport, Toronto.

Section 3.—Standard Time and Time Zones

Standard Time, which was adopted at a World Conference held at Washington, D.C., in 1884, sets the number of time zones in the world at 24, each zone ideally extending over one twenty-fourth of the surface of the earth and including all the territory between two meridians 15° of longitude apart. In practice, the zone boundaries are quite irregular for geographic and political reasons. Universal Time (UT) is the time of the zone centred on the zero meridian through Greenwich. Each of the other time zones is a definite number of hours ahead of or behind UT to a total of 12 hours, at which limit the international date line runs roughly north-south through the mid-Pacific.

Canada has seven time zones, the most easterly being Newfoundland Standard Time, three hours and thirty minutes behind UT. In the west, Yukon Standard Time, which is used throughout Yukon Territory, is nine hours behind UT. In between, from east to west, the remaining zones are called Atlantic, Eastern, Central, Mountain and Pacific Standard Time.



Legal Authority for the Time Zones.—Time in Canada has been considered a matter of provincial rather than federal jurisdiction. Each of the provinces and the Northwest Territories has enacted laws governing the standard time to be used within its boundaries. These laws determine the location of the time zone boundaries. Lines of communication, however, have caused communities near the boundary of a time zone to adopt

the time of the adjacent zone, and in most cases these changes are acknowledged by amendments to provincial legislation. During the two World Wars, there were federal enactments concerning time but these were of temporary duration. In 1941 the Dominion Observatory time was declared the time to be used for official purposes in Canada.

Daylight Saving Time.—Although Daylight Saving Time had been urged in many quarters before World War I, its first use in Canada came as a federal war measure in 1918. Today most of the provinces have legislation controlling the provincial or municipal adoption (or rejection) of Daylight Saving. In the remaining provinces it is necessary to refer to the individual municipalities to determine whether, and between what dates, Daylight Saving is adopted in any particular year.

CHAPTER II.—CONSTITUTION AND GOVERNMENT*

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

PART I.—CONSTITUTION OF CANADA

The Canadian federal state, which today comprises ten provinces and two vast northern territories, had its beginning ninety-eight years ago in the enactment (Mar. 29, 1867) by the British Parliament of the British North America Act, 1867. Fashioned largely out of the Seventy-two Resolutions drafted at Quebec (1864) by the Fathers of Confederation, the British North America Act, 1867 provided for the federal union of the three British North American provinces (Canada, New Brunswick and Nova Scotia) in one Dominion under the name of "Canada".

Although the new nation that came into being on July 1, 1867 was a federation comprised of four provinces, namely, Ontario, Quebec, New Brunswick and Nova Scotia, Sect.

* Except where otherwise indicated, the information in this Chapter has been brought up to the date of Apr. 30, 1965. Certain changes occurring between that date and the date of going to press will be found in an Appendix to this volume. Also, official appointments made up to the date of going to press will be found in Chapter XXVII (see Index).

146 of the Act provided for the admission into the Union of the Crown colonies of Prince Edward Island and Newfoundland on the Atlantic and the united (1866) island and mainland colony of British Columbia on the Pacific, and also of the vast expanse of Hudson's Bay Company territory in the North West known as "Rupert's Land and the North-Western Territory". Following the negotiation of an agreement on terms comprising the Company's surrender of its authority and territories to the Crown (which was to transfer them at once to Canada) and the retention of one twentieth of the land of the fertile belt (the southern territories) with designated blocks of land around its trading posts and a Canadian cash payment of £300,000, the new nation of Canada was ready to expand westward with considerable momentum across the Continent to the Pacific.

The acquisition by Canada of Rupert's Land and the North-Western Territory enabled the Red River settlement, after a few months of disturbance, to receive limited provincial establishment under the name of "Manitoba" in 1870; provided the Federal Government with the public lands needed to help subsidize a transcontinental railway linking the Pacific with the Canadian East, thereby fulfilling the pledge to British Columbia to begin the Canadian Pacific Railway within two years and to complete it within ten years of the date of union, July 20, 1871; and laid, through the provision of millions of acres of public lands, the land and economic bases for the Federal Government's adoption of a free-homestead policy for the Canadian prairies that, in conjunction with the completion of the Canadian Pacific Railway and the launching of other railway lines, brought wave after wave of settlers into the Northwest Territories in such numbers as to justify the creation of the two Provinces of Saskatchewan and Alberta in 1905 out of the portion of the Northwest Territories south of the 60th parallel of north latitude. Although provision for their entry was included in the British North America Act, 1867, the Province of Prince Edward Island held back from the Union until 1873 and Newfoundland became Canada's tenth province on Mar. 31, 1949.

The Constitution of Canada, which had a corporate beginning in 1867, combines, in a set of rules determining the creation and operation of the machinery or institutions of government, the Cabinet system of responsible government (based on an inheritance from Britain) with a Canadian adaptation of federalism (as then practised in the United States for eighty years). A written document, the British North America Act of 1867, contains a substantial portion of Canada's Constitution and this Act, with its various amendments,* is popularly held to be the Canadian Constitution. There is, however, another and perhaps more important part which appears, through the evolutionary processes of historical growth, in various guises including well-established usages and conventions found in the unwritten provisions of the Constitution.

Thus, the British North America Act is not a comprehensive constitutional document presenting an exhaustive statement of fundamental laws and rules by which Canada is governed. The Constitution of Canada in its broadest sense includes other British statutes (such as the Statute of Westminster, 1931) and Orders in Council (notably those admitting various provinces and territories to the federation), statutes of the Parliament of Canada relating to such matters as the succession to the Throne, the Royal Style and Titles, the Governor General, the Senate, the House of Commons, the creation of courts, the

* See *A Consolidation of The British North America Acts 1867 to 1970*, consolidated by Elmer A. Driedger as of Jan. 1, 1964. Queen's Printer, Ottawa. 75 cents (Catalogue No. YX1-164). A further amendment was made in 1964 respecting old age pensions (see p. 79).

establishment of government departments, the franchise, elections, and also statutes of provincial legislatures relating to provincial constitutional institutions and government matters. Federal and provincial Orders in Council, legally authorized by their respective statutes, provide further constitutional material as do the decisions of the courts which interpret the British North America Act and all ordinary statutes and indeed possess the power to set aside any laws which they hold to be *ultra vires* or beyond the jurisdiction of the enacting legislative bodies, whether federal or provincial. Moreover, the Canadian Constitution comprises, in addition to the statutory law and its judicial interpretation, substantial sections of the common law, unwritten constitutional usages and conventions and principles of democratic government which were transplanted from Britain over two hundred years ago and since then have been thriving and evolving in the Canadian environment. For example, the Cabinet system of responsible government (see pp. 74-75) and its functioning through close identification of the executive and the legislative powers (that is, of the Cabinet and the House of Commons) is not mentioned in the British North America Act but derives from an unwritten convention of the Constitution.

Although the essential principles of Cabinet government are based in custom or constitutional usage, the federal structure of Canadian government rests on the explicit written provisions of the British North America Act. Apart from the creation of the federal union, the dominant feature of the Act and indeed of the Canadian federation was the distribution of powers between the central or federal government on the one hand and the component provincial governments on the other. In brief, the primary purpose was to grant to the Parliament of Canada legislative jurisdiction over all subjects of general or common interest, while giving to the provincial legislatures jurisdiction over all matters of local or particular interest (see pp. 93-94 and pp. 107-108).

Unlike the written constitutions of many nations, the British North America Act lacks comprehensive "bill of rights" clauses, although it does accord specific constitutional protection to the use of the English and French languages (clause 133) and special safeguards with respect to sectarian or denominational schools. Such vital rights as freedom of speech, freedom of assembly, freedom of religion, freedom of the press, trial by jury and similar liberties enjoyed by the individual citizen are not recorded in the British North America Act but rather depend on the statute law and the common law inheritance. Security of these rights was confirmed by the passage of a Canadian Bill of Rights—An Act for the Recognition and Protection of Human Rights and Fundamental Freedoms (SC 1960, c. 44), assented to Aug. 10, 1960. (See also Chapter IX, Sect. 1 on Canadian Criminal Law and Procedure.)

Treaty-Making Powers.*—The Federal Government has exclusive responsibility for the conduct of external affairs as a matter of national policy affecting all Canadians. The policy of the Federal Government in discharging this responsibility is to seek to promote the interest of the entire country and of all Canadians of the various provinces within the over-all framework of the national policy.

In respect of matters of specific concern to the provinces of Canada, it is the policy of the Canadian Government, in a spirit of co-operative federalism, to do its utmost to assist the provinces in achieving the particular aspirations and goals which they wish to attain. The attitude of the Federal Government in this respect was illustrated by the "entente" signed by representatives of Quebec and France in the field of education in February 1965. The Quebec and federal authorities co-operated actively in a procedure

* Extracted from "The Provinces and Treaty-Making Powers", Appendix to *Votes and Proceedings of the House of Commons of Canada*, No. 8. Apr. 26, 1965.

which enabled the Province of Quebec, within the framework of the Constitution and the national policy, to participate in international arrangements in a field of particular interest to that province.

Thus, under existing procedures, the position is that, once it is determined that what a province wishes to achieve through agreements in the field of education or in other fields of provincial jurisdiction falls within the framework of Canadian foreign policy, the provinces can discuss detailed arrangements directly with the competent authorities of the country concerned. When a formal international agreement is to be concluded, however, the federal powers relating to the signature of treaties and the conduct of over-all foreign policy must necessarily come into operation.

The approach of the Canadian Government to the question of Canadian representation in international organizations of a social, cultural or humanitarian character reflects the same constructive spirit. It recognizes the desirability of ensuring that the Canadian representation in such organizations and conferences reflects in a fair and balanced way provincial and other interests in these subjects.

Amendment of the Constitution.—No provision was made in the British North America Act of 1867 for amendment thereof by any legislative authority in Canada but both the Parliament of Canada and the provincial legislatures were given legislative jurisdiction with respect to some matters relating to government. Thus, for example, the Parliament of Canada was given jurisdiction with respect to the establishment of electoral districts and election laws and the privileges and immunities of Members of the House of Commons and the Senate, and each provincial legislature was empowered to amend the constitution of the province except as regards the office of Lieutenant-Governor. By an amendment to the British North America Act passed in 1949, the authority of the Parliament of Canada to legislate with respect to constitutional matters was considerably enlarged and it may now amend the Constitution of Canada except as regards the legislative authority of the provinces, the rights and privileges of provincial legislatures or governments, schools, the use of the English or the French language, and the duration of the House of Commons other than in time of real or apprehended war, invasion or insurrection.

The question of devising amendment procedure within Canada which satisfies the need to safeguard or entrench such basic provincial and minority rights as are noted immediately above and yet possesses sufficient flexibility to ensure that the Constitution can be altered to meet changing circumstances is one that still engages the attention of the federal and provincial governments and legislatures. An outline of the constitutional background to the problem, an annotated list of the fourteen occasions since 1867 when amendments to the British North America Act were made by the United Kingdom Parliament, a concise review of the prolonged search for a satisfactory amending procedure in Canada—the subject of repeated consideration in the Parliament of Canada and in a series of formal federal-provincial conferences and meetings in the years 1927, 1935-36, 1950, 1960-61, and 1964—and, more specifically, the text of a draft Bill “to provide for the amendment in Canada of the Constitution of Canada” (accompanied by explanatory notes relating thereto) which embodies the amending procedure or formula unanimously recommended by the Conference of Attorneys-General and unanimously accepted by the Conference of the Prime Minister and the Premiers (October 1964) are all made available in an official publication entitled *The Amendment of the Constitution of Canada*, authorized by the Minister of Justice, February 1965.* In the summer of 1965, the Government of Canada was awaiting the acceptance of this “Fulton-Favreau amendment formula” by the ten provincial legislatures before bringing it before the Federal Parliament for enactment.

* Available from the Queen's Printer, Ottawa. \$2 (Cat. No. J2-1665).

1.—Provinces and Territories of Canada, Dates of Admission to Confederation, Legislative Processes by which Admission was Effected, Present Area and Seat of Government

Province, Territory or District	Date of Admission or Creation	Legislative Process	Present Area (sq. miles)	Seat of Provincial or Territorial Government
Ontario ¹	July 1, 1867	Act of Imperial Parliament—The British North America Act, 1867 (Br. Stat. 1867, c. 3) and Imperial Order in Council, May 22, 1867.	412,582	Toronto
Quebec ²	July 1, 1867		594,860	Quebec
Nova Scotia.....	July 1, 1867		21,425	Halifax
New Brunswick.....	July 1, 1867		28,354	Fredericton
Manitoba ³	July 15, 1870	Manitoba Act, 1870 (SC 1870, c. 3) and Imperial Order in Council, June 23, 1870.	251,000	Winnipeg
British Columbia.....	July 20, 1871	Imperial Order in Council, May 16, 1871..	366,255	Victoria
Prince Edward Island....	July 1, 1873	Imperial Order in Council, June 26, 1873..	2,184	Charlottetown
Saskatchewan ⁴	Sept. 1, 1905	Saskatchewan Act, 1905 (SC 1905, c. 42)..	251,700	Regina
Alberta ⁴	Sept. 1, 1905	Alberta Act, 1905 (SC 1905, c. 3).....	255,285	Edmonton
Newfoundland.....	Mar. 31, 1949	The British North America Act, 1949 (Br. Stat. 1949, c. 22).....	156,185	St. John's
Northwest Territories ⁵ ...	July 15, 1870	Act of Imperial Parliament—Rupert's Land Act, 1868 (Br. Stat. 1868, c. 105) and Imperial Order in Council, June 23, 1870.....	1,304,903	Ottawa ⁷
Mackenzie ⁶	Jan. 1, 1920	Order in Council, Mar. 16, 1918.....	527,490	
Keewatin ⁶	Jan. 1, 1920		228,160	
Franklin ⁶	Jan. 1, 1920		649,253	
Yukon Territory ⁸	June 13, 1898	Yukon Territory Act, 1898 (SC 1898, c. 6)	207,076	Whitehorse
Canada.....			3,851,809	

¹ The area of Ontario was extended by the Ontario Boundaries Extension Act, 1912 (SC 1912, c. 40).

² Extended by Quebec Boundaries Extension Act, 1912 (SC 1912, c. 45) and diminished Mar. 1, 1927 in consequence of the Award of the Judicial Committee of the British Privy Council whereby approximately 112,000 sq. miles of territory (formerly considered as part of Quebec) was assigned to Newfoundland.

³ Extended by the Extension of Boundaries Act of Manitoba, 1881 and the Manitoba Boundaries Extension Act, 1912 (SC 1912, c. 32).

⁴ Saskatchewan and Alberta created as provinces in 1905 from the area formerly comprised in the provisional districts of Assiniboia, Athabaska, Alberta and Saskatchewan established May 17, 1882 by minute of Canadian Privy Council concurred in by Dominion Parliament and Order in Council, Oct. 2, 1895.

⁵ By an Imperial Order in Council passed on June 23, 1870 pursuant to the Rupert's Land Act, 1868 (Br. Stat. 1868, c. 105), the former territories of the Hudson's Bay Company known as Rupert's Land and the North-Western Territory were transferred to Canada effective July 15, 1870. These territories were designated as the North-West Territories by the Act of SC 1869, c. 3 and as the Northwest Territories by RSC 1906, c. 62. By Imperial Order in Council of July 31, 1880 (effective Sept. 1, 1880), all British territories and possessions in North America not already included within Canada and all islands adjacent thereto (with the exception of the Colony of Newfoundland and its dependencies) were annexed to Canada and these additional territories were formally included in the North-West Territories by SC 1905, c. 27. The Province of Manitoba was formed out of a portion of the territories by the Manitoba Act, 1870 (SC 1870, c. 3) and a further portion was added to Manitoba in 1881 by SC 1881, c. 14. The Provinces of Alberta and Saskatchewan were formed out of portions of the territories in 1905 and in 1912 other portions were added to Manitoba, Ontario and Quebec.

⁶ By SC 1876, c. 21, a separate district to be known as the District of Keewatin was established and provision was made for the local government thereof. The Act was expressed to come into force by proclamation. It provided that portions of the District might be re-annexed to the North-West Territories by proclamation; in 1886 a portion of the District of Keewatin was re-annexed and in 1905 the entire Keewatin District was re-annexed. The Act of 1876 was never proclaimed. By Order in Council of May 8, 1882 the provisional districts of Assiniboia, Saskatchewan, Alberta and Athabaska were created for the convenience of settlers and for postal purposes. By Order in Council of Oct. 2, 1895 the further provisional districts of Ungava, Franklin, Mackenzie and Yukon were created. The boundaries of these provisional districts were re-defined by Order in Council of Dec. 18, 1897. Subsequently the Yukon Territory was formed, the Provinces of Alberta and Saskatchewan were created and other portions of the territories were annexed to Quebec, Ontario and Manitoba. By Order in Council dated Mar. 16, 1918 (effective Jan. 1, 1920) the remaining portions of the Northwest Territories were divided into three provisional districts known as Mackenzie, Keewatin and Franklin.

⁷ See pp. 106-107.

⁸ The provisional district of Yukon established in 1895 was created a judicial district of the North-West Territories by proclamation issued pursuant to Sect. 51 of the North-West Territories Act (RSC 1886, c. 50) on Aug. 16, 1897 and by the Yukon Territory Act (SC 1898, c. 6) was declared to be a separate Territory.



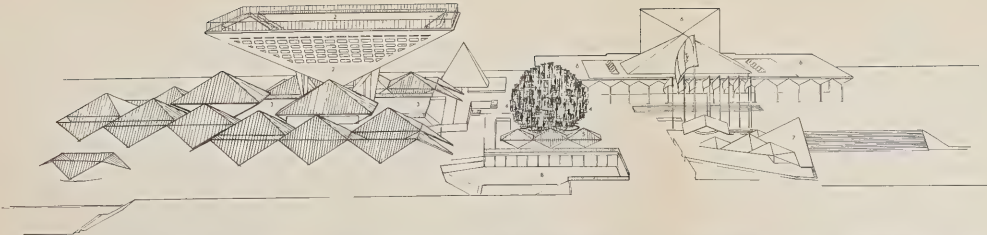
Photo by Albert Krafczyk Prepared for the Canada Year Book 1966 by Canadian Participation, Expo 67 Graphics by Jean Boyer

The Canadian Pavilion, expo67 Montreal

The Canadian Pavilion

expo67

Montreal



Participation

The Federal Government Pavilion is Canada's official participation in Expo 67. Canada is the host nation to this world exhibition, and the Pavilion has been designed to make Canada and Canadians better known to visitors from around the world. It also serves as a mirror in which Canadians may see themselves with enhanced insight into what it means to be a Canadian. Canada's prosperity and progress depend upon natural and creative resources; the architectural and thematic concepts of the Pavilion bring these to life. The cluster of pyramids suggests the crystalline nature of natural resources; the great inverted pyramid illustrates the balance of the conservative and the daring which transforms tradition into new and vital creative forms. The overall theme of the world exhibition is *Man in his World*. In keeping with this theme, the Pavilion reflects Canadians and the part they play in developing their

country and its relations with other countries of the world. Although basically it gives a serious look at Canada, at what the country is and what its people do, the Pavilion and its exhibits offer an enjoyable and entertaining experience.

H. Leslie Brown

H. Leslie Brown
Commissioner General

The Challenges

The Challenges, the largest exhibit area of the Pavilion, is divided into three sections with one unifying theme—the challenges that Canadians face in making and keeping their country vital and progressive. The Challenge of Resources deals with nature's great bounty at the disposal of Canadians and how they have applied energy to develop and use these resources. The Challenge of Distance and the response of transportation and communications shows how Canadians have overcome great barriers of distance and topography in order to transport efficiently the products of energy applied to resources, and to communicate quickly and easily with each other and with the world. The Challenge of Living poses the challenge of technological change. Through the adventure of continuous learning, the Canadian has the opportunity of preparing for occupational change, of playing a fuller role in his community and government, and of developing his personal skills and awareness by the satisfying use of leisure.

Interdependence

Canadians are conscious of the growing interdependence within the world community of nations and of their country's involvement in it. On the plinth beneath the great inverted pyramid, Canada's participation in various aspects of this interdependence is outlined. The exhibits depict the role that Canadians play in the advancement of universal understanding and goodwill. The inverted pyramid is called the Katimavik, an Eskimo word meaning "a gathering place". The interior is an expression of concepts universal to all men, an expression through sculptured objects representing the measure of man in Time, Navigation, Nature and Man himself. The Katimavik offers an unusual environment, a place appropriate to reflect upon Man and His World.

Growth

The Growth exhibit pictures the development of Canada as a country, using a variety of media to portray the dominant events in its making. The major experience is a film ride in which the audience is carried through a series of five theatres, progressing through the pages of history from the days of early settlement to the present. The audience leaves through a large hexagon of mirrors in which they become part of a colourful fantasy of Confederation Day, 1867.

The Tree of the People

Unique and resplendent stands the Tree of the People, an abstract maple tree portraying the Canadian people in their great diversity of origin and occupation. The large "leaves" of the tree are photographs of Canadians in natural size, working and at leisure. The photographs are linked to suggest the magnificent colours of the maple in autumn. Slepped ramps encourage the visitor to climb among these leaves and surround himself with a kaleidoscope of Canadian activity. At the tree roots are exhibits outlining various sociological factors in Canadian life, typical of which are biculturalism and ethnic diversity. These, seen together with the leaves, give a vivid portrait of Canadians today.

The Land of Canada

The introduction to the Pavilion is an exhibition devoted to the Land of Canada, in which films and music, with a sculptured metal screen, combine to suggest the vastness and beauty of the Land.

The Arts Centre

The Arts Centre includes a modern 500-seat theatre, an art gallery and a library, all devoted to the creative and performing arts in Canada. The visitor may view Canadian visual arts in the gallery, theatrical performances and films in the theatre and, in the library, a wide selection of Canadian books in English and French, as well as fewer numbers in the languages of Canadians of other ethnic cultures. The Centre contains two restaurants with different price ranges, both featuring Canadian food, finely prepared and well served. Also housed in the building are the administrative offices for the Canadian Pavilion, a first-aid station and the security services.

The Bandshell

Visitors to the Pavilion will gravitate to the bandshell, an outdoor stage with seating for 1,500 people. Band concerts, folk dancing and similar events performed by amateur and professional groups from across Canada are the feature of this area, and audience participation will be encouraged whenever possible.

The Children's Centre

The Children's Creative Centre comprises a model nursery school for the very young, and music, drama and art studios for children from 6 to 11 years. The playground will be enjoyed because it uses playthings from everyday life. Through one-way glass, skilled teachers can be viewed demonstrating the best in Canadian methods of stimulating imagination and developing creative power.



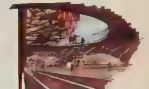
Mining and Extractions



Objects in Katimavik



Inside Mirror Box



Under the Tree of the People



The Restaurant Terrace



The Children's Playground

PART II.—MACHINERY OF GOVERNMENT

Section 1.—The Federal Government

Subsection 1.—The Executive

The Crown.—The British North America Act of 1867 (Sect. 9) provides that “the Executive Government and authority of and over Canada is . . . vested in the Queen”. The functions of the Crown, which are substantially the same as those of The Queen in relation to the British Government, are discharged in Canada by the Governor General in accordance with established principles of responsible government.

The Queen.—The personal participation of The Queen in the functions of the Crown in Canada has been limited to such occasions as the granting of honours and awards, approval of changes in the Table of Precedence, institution of new military awards, or the periodic appointment of a Governor General. On the occasion of a royal visit, The Queen may participate in those ceremonies that otherwise are carried out in her name, such as the opening and dissolution of Parliament, the assent to Bills and the granting of a general amnesty.

Apart from her constitutional position in relation to the various governments of the Commonwealth countries, The Queen is Head of the Commonwealth and symbolizes the association of the member countries. Until 1953 the title of The Queen was the same throughout the Commonwealth. Constitutional developments put the title somewhat out of accord with the facts of the position, and in December 1952 it was decided by the Prime Ministers of the Commonwealth countries meeting at London, England, that new forms of title for each country should be devised. The title for Canada was approved by Parliament and established by a Royal Proclamation on May 29, 1953. The title of The Queen, so far as Canada is concerned, now is:—

“Elizabeth the Second, by the Grace of God, of the United Kingdom, Canada and Her other Realms and Territories Queen, Head of the Commonwealth, Defender of the Faith”.

1.—Sovereigns of Canada since Confederation, 1867

Name	Dynasty	Year of Birth	Date of Accession
Victoria.....	House of Hanover.....	1819	June 20, 1837
Edward VII.....	House of Saxe-Coburg and Gotha.....	1841	Jan. 22, 1901
George V.....	House of Windsor.....	1865	May 6, 1910
Edward VIII.....	House of Windsor.....	1894	Jan. 20, 1936
George VI.....	House of Windsor.....	1895	Dec. 11, 1936
Elizabeth II.....	House of Windsor.....	1926	Feb. 6, 1952

The Governor General.—The Governor General, appointed by The Queen as her personal representative in Canada on the advice of the Prime Minister of Canada, traditionally serves for a term of five years. He exercises the executive authority of The Queen in relation to the Government of Canada under Letters Patent issued under the Great Seal of Canada (revised and re-issued, effective Oct. 1, 1947) and the provisions of the British North America Acts, 1867 to 1960. Acting under the recommendations of his responsible Ministers, in The Queen's name, he summons, prorogues and dissolves Parliament, assents to Bills, and exercises other executive functions.

The Governor General's annual salary and allowances provided by the Parliament of Canada are \$48,666 and \$80,000, respectively. Office expenses and certain other items of expenditure are provided for in the estimates for the Office of the Secretary to the Governor General.

The present Governor General is styled His Excellency General The Right Honourable Georges P. Vanier, D.S.O., M.C., C.D.

2.—Governors General of Canada since Confederation, 1867

Name	Date of Appointment	Date of Assumption of Office
THE VISCOUNT MONCK OF BALLYTRAMMON.....	June 1, 1867	July 1, 1867
THE BARON LISGAR OF LISGAR AND BAILEBOROUGH.....	Dec. 29, 1868	Feb. 2, 1869
THE EARL OF DUFFERIN.....	May 22, 1872	June 25, 1872
THE MARQUIS OF LORNE.....	Oct. 5, 1878	Nov. 25, 1878
THE MARQUIS OF LANSDOWNE.....	Aug. 18, 1883	Oct. 23, 1883
THE BARON STANLEY OF PRESTON.....	May 1, 1888	June 11, 1888
THE EARL OF ABERDEEN.....	May 22, 1893	Sept. 18, 1893
THE EARL OF MINTO.....	July 30, 1898	Nov. 12, 1898
THE EARL GREY.....	Sept. 26, 1904	Dec. 10, 1904
FIELD MARSHAL H. R. H. THE DUKE OF CONNAUGHT.....	Mar. 21, 1911	Oct. 13, 1911
THE DUKE OF DEVONSHIRE.....	Aug. 19, 1916	Nov. 11, 1916
GENERAL THE BARON BYNG OF VIMY.....	Aug. 2, 1921	Aug. 11, 1921
THE VISCOUNT WILLINGDON OF RATTON.....	Aug. 5, 1926	Oct. 2, 1926
THE EARL OF BESSBOROUGH.....	Feb. 9, 1931	Apr. 4, 1931
THE BARON TWEEDSMUIR OF ELSFIELD.....	Aug. 10, 1935	Nov. 2, 1935
MAJOR GENERAL THE EARL OF ATHLONE.....	Apr. 3, 1940	June 21, 1940
FIELD MARSHAL THE VISCOUNT ALEXANDER OF TUNIS.....	Mar. 21, 1946	Apr. 12, 1946
THE RIGHT HONOURABLE VINCENT MASSEY.....	Jan. 24, 1952	Feb. 28, 1952
GENERAL THE RIGHT HONOURABLE GEORGES P. VANIER.....	Aug. 1, 1959	Sept. 15, 1959

The Cabinet.—The Cabinet is a committee of Ministers chosen by the Prime Minister (the leader of the political party forming the Government of the Day) generally from Members of Parliament. By convention, all members of the Cabinet either have seats in Parliament or secure seats within a short time and, again by convention, all Ministers in charge of departments of government are generally Members of the House of Commons although there is nothing in the Constitution to prevent a Minister with Portfolio being a Senator.* However, they generally prefer to have seats in the House of Commons where all crucial legislation, by convention, is introduced and where they can offer explanations necessary to secure passage of their Estimates or legislation with which they are deeply concerned. Ministers without Portfolio (without a department to administer) can be members of either the House of Commons or the Senate. Frequently the Cabinet contains one Minister without Portfolio—usually the Leader of the Government in the Senate—and perhaps one or two others chosen for a variety of reasons such as the desirability of including certain provincial or sectional representation that might otherwise be lacking in the Ministry.

Cabinet members are selected by the Prime Minister in such manner as to ensure, as far as possible, representation of the several geographical and political regions of the country and its principal ethnic, religious and social interests. Each Cabinet Minister generally assumes charge of one of the departments of government, although a Minister may hold more than one portfolio at the same time or he may hold one or more portfolios and one or more acting portfolios, or a Minister without Portfolio may hold one or more acting portfolios. In his acting capacity, the Minister exercises the same authority as if he were the Minister of the department.

* Senator the Hon. Gideon Decker Robertson held the portfolio of Minister of Labour for the periods Nov. 7, 1918 to Dec. 29, 1921 and Aug. 7, 1930 to Feb. 2, 1932; Senator the Hon. Malcolm Wallace McCutcheon served as Minister of Trade and Commerce from Feb. 12 to Apr. 22, 1963.

The position of Prime Minister, the keystone of the Cabinet, is one of exceptional authority. He alone makes recommendations on the dissolution and convocation of Parliament, appointment of Privy Councillors, Cabinet Ministers, Lieutenant-Governors, Chief Justices, Senators, Speakers of the Senate and House of Commons, and Deputy Heads of departments. The Cabinet, under his leadership, directs the business of the Commons, initiates nearly all public Bills placed before Parliament, and has complete responsibility for the initiation of taxes and the recommendation of expenditures. Following established precedent or convention, it is always responsible to the Commons. When the Cabinet (the Government) suffers defeat on a Government Bill or a vote of censure or on a motion of want of confidence in the Commons, the existing Government or Cabinet must either resign or request a dissolution from the Governor General. If it resigns, the Governor General may call on the Leader of the Opposition in the Commons to form a new Government. Alternatively, if a Government that has been defeated in the House is granted a dissolution and is defeated in the ensuing general election, then, should no clear majority be indicated, the Government may decide (1) to remain in office and seek a vote of confidence in the House when it meets or (2) to resign immediately with the consequent result that the Governor General will ask the leader of the party with the highest number of members returned to form a new Government. These alternatives may also eventuate as a result of a general election subsequent to the normal dissolution of Parliament at or near the close of its statutory life.

The primary responsibility of the Governor General in either of the above circumstances is to provide the nation with a Cabinet or Ministry capable of conducting Her Majesty's Government with the support of the House of Commons.

The Prime Ministers since Confederation are listed in Table 3 and the members of the Ministry as at Apr. 30, 1965 in Table 4. Sessional and other allowances received by Cabinet Ministers are given at pp. 88-89.

3.—Prime Ministers since Confederation, 1867

Ministry	Prime Minister	Length of Administration
1	Rt. Hon. Sir JOHN ALEXANDER MACDONALD.....	July 1, 1867 — Nov. 5, 1873
2	Hon. ALEXANDER MACKENZIE.....	Nov. 7, 1873 — Oct. 16, 1878
3	Rt. Hon. Sir JOHN ALEXANDER MACDONALD.....	Oct. 17, 1878 — June 6, 1891
4	Hon. Sir JOHN JOSEPH CALDWELL ABBOTT.....	June 16, 1891 — Nov. 24, 1892
5	Rt. Hon. Sir JOHN SPARROW DAVID THOMPSON.....	Dec. 5, 1892 — Dec. 12, 1894
6	Hon. Sir MACKENZIE BOWELL.....	Dec. 21, 1894 — Apr. 27, 1896
7	Rt. Hon. Sir CHARLES TUPPER.....	May 1, 1896 — July 8, 1896
8	Rt. Hon. Sir WILFRID LAURIER.....	July 11, 1896 — Oct. 6, 1911
9	Rt. Hon. Sir ROBERT LAIRD BORDEN.....	Oct. 10, 1911 — Oct. 12, 1917 (Conservative Administration)
10	Rt. Hon. Sir ROBERT LAIRD BORDEN.....	Oct. 12, 1917 — July 10, 1920 (Unionist Administration)
11	Rt. Hon. ARTHUR MEIGHEN.....	July 10, 1920 — Dec. 29, 1921 (Unionist—"National Liberal and Conservative Party")
12	Rt. Hon. WILLIAM LYON MACKENZIE KING.....	Dec. 29, 1921 — June 28, 1926
13	Rt. Hon. ARTHUR MEIGHEN.....	June 29, 1926 — Sept. 25, 1926
14	Rt. Hon. WILLIAM LYON MACKENZIE KING.....	Sept. 25, 1926 — Aug. 6, 1930
15	Rt. Hon. RICHARD BEDFORD BENNETT.....	Aug. 7, 1930 — Oct. 23, 1935
16	Rt. Hon. WILLIAM LYON MACKENZIE KING.....	Oct. 23, 1935 — Nov. 15, 1948
17	Rt. Hon. LOUIS STEPHEN ST. LAURENT.....	Nov. 15, 1948 — June 21, 1957
18	Rt. Hon. JOHN GEORGE Diefenbaker.....	June 21, 1957 — Apr. 22, 1963
19	Rt. Hon. LESTER BOWLES PEARSON.....	Apr. 22, 1963 — ...

4.—Members of the Nineteenth Ministry, as at Apr. 30, 1965¹

(According to precedence of Ministers)

NOTE.—A complete list of the members of Federal Ministries from Confederation to 1913 appears in the 1912 Year Book, pp. 422-429. Later Ministries will be found in subsequent editions.

Office	Occupant	Date of First Appointment	Date of Appointment to Present Portfolio
Prime Minister.....	Rt. Hon. LESTER BOWLES PEARSON...	Apr. 22, 1963	Apr. 22, 1963
Secretary of State for External Affairs.....	Hon. PAUL JOSEPH JAMES MARTIN.....	Apr. 22, 1963	Apr. 22, 1963
Minister of Transport.....	Hon. JOHN WHITNEY PICKERSGILL.....	Apr. 22, 1963	Feb. 3, 1964
Minister of National Defence.....	Hon. PAUL THEODORE HELLYER.....	Apr. 22, 1963	Apr. 22, 1963
Minister of Finance and Receiver General.....	Hon. WALTER LOCKHART GORDON.....	Apr. 22, 1963	Apr. 22, 1963
Minister of Trade and Commerce.....	Hon. MITCHELL SHARP.....	Apr. 22, 1963	Apr. 22, 1963
President of the Queen's Privy Council for Canada.....	Hon. GEORGE JAMES McILRAITH.....	Apr. 22, 1963	Feb. 3, 1964
Minister of Mines and Technical Surveys.....	Hon. WILLIAM MOORE BENDICKSON.....	Apr. 22, 1963	Apr. 22, 1963
Minister of Northern Affairs and National Resources.....	Hon. ARTHUR LAING.....	Apr. 22, 1963	Apr. 22, 1963
Secretary of State of Canada.....	Hon. MAURICE LAMONTAGNE.....	Apr. 22, 1963	Feb. 3, 1964
Minister of Public Works.....	Hon. LUCIEN CARDIN.....	Apr. 22, 1963	Feb. 15, 1965
Minister of Labour.....	Hon. ALLAN JOSEPH MACEachEN.....	Apr. 22, 1963	Apr. 22, 1963
Minister of Fisheries.....	Hon. HÉDARD RORICHAUD.....	Apr. 22, 1963	Apr. 22, 1963
Solicitor General.....	Hon. J. WATSON MACNAUGHT.....	Apr. 22, 1963	Apr. 22, 1963
Minister of Veterans Affairs.....	Hon. ROGER TEILLET.....	Apr. 22, 1963	Apr. 22, 1963
Minister of National Health and Welfare.....	Hon. JUDY V. LAMARSH.....	Apr. 22, 1963	Apr. 22, 1963
Minister of Industry and Minister of Defence Production.....	Hon. CHARLES MILLS DRURY.....	Apr. 22, 1963	July 25, 1963
Minister of Justice and Attorney General.....	Hon. GUY FAYVEAU.....	Apr. 22, 1963	Apr. 22, 1963
Minister of Citizenship and Immigration.....	Hon. JOHN ROBERT NICHOLSON.....	Apr. 22, 1963	Feb. 3, 1964
Minister of Agriculture.....	Hon. HARRY HAYS.....	Apr. 22, 1963	Feb. 15, 1965
Postmaster General.....	Hon. RENÉ TREMBLAY.....	Apr. 22, 1963	Apr. 22, 1963
Minister without Portfolio.....	Hon. JOHN JOSEPH CONNOLLY.....	Feb. 3, 1964	Feb. 3, 1964
Minister of Forestry.....	Hon. MAURICE SAUVÉ.....	Feb. 3, 1964	Feb. 3, 1964
Minister of National Revenue.....	Hon. EDGAR JOHN BENSON.....	June 29, 1964	June 29, 1964
Associate Minister of National Defence.....	Hon. LEO ALPHONSE JOSEPH CADÉUX.....	Feb. 15, 1965	Feb. 15, 1965

¹ Changes occurring between Apr. 30, 1965 and the date of going to press will be carried in an Appendix to this volume.

Parliamentary Secretaries.—The Parliamentary Secretaries Act (SC 1959, c. 15), assented to June 4, 1959, provides for the appointment of 16 Parliamentary Secretaries from among the Members of the House of Commons to assist the respective Ministers in such manner as each Minister may direct. The Government thus revived the system of parliamentary assistantships in practice during the World War II and postwar years subsequent to 1943, whereby Cabinet Ministers might receive assistance in the performance of their parliamentary functions and promising Members of the House might secure a degree of apprenticeship for higher public office. Parliamentary Secretaries hold office for 12 months.

At Apr. 30, 1965, the following Parliamentary Secretaries were in office:—

<u>Secretary</u>	<u>Minister</u>
JACK DAVIS.....	Prime Minister
STANLEY HAIKASZ.....	External Affairs
JEAN-CHARLES CANTIN.....	Transport
LAWRENCE T. PENNELL.....	Finance
JEAN-LUC PÉPIN.....	Trade and Commerce
JOHN N. TURNER.....	Northern Affairs and National Resources
JOHN B. STEWART.....	Secretary of State
JAMES A. BYRNE.....	Labour
G. ROY McWILLIAM.....	Public Works
CHESLEY W. CARTER.....	Veterans Affairs
JOHN C. MUNRO.....	National Health and Welfare
DONALD S. MACDONALD.....	Justice
ALEXIS CARON.....	Postmaster General
BRUCE S. BEER.....	Agriculture
HUBERT BADANAL.....	Forestry
	Citizenship and Immigration

The Privy Council.—The British North America Act of 1867 (Sect. 11) provides for "a Council to aid and advise in the Government of Canada, to be styled the Queen's Privy Council for Canada...". At present it consists of about 115 members sworn of the Council by the Governor General on the advice of the Prime Minister. Membership in the Privy Council is for life so that Privy Councillors include both former and present Ministers of the Crown as well as a number of persons who have been, from time to time as an honour, sworn as Privy Councillors; these include members of the Royal Family, past and present Commonwealth Prime Ministers, and former Speakers of the Senate and of the House of Commons of Canada. The Council seldom meets as a body and its constitutional responsibilities as adviser to the Crown in respect to Canada are performed exclusively by a Committee; the membership thereof, with a few historical exceptions, is identical to that of the Cabinet of the Day. A clear distinction between the functions of the Committee of the Privy Council and the Cabinet is rarely made and actually the terms "Council" and "Cabinet" are commonly employed as synonyms.

5.—Members of the Queen's Privy Council for Canada According to Seniority Therein, as at Apr. 30, 1965

President of the Privy Council..... Hon. G. J. McILRAITH
Clerk of the Privy Council and Secretary to the Cabinet..... R. G. ROBERTSON

NOTE.—In this list the prefix "Rt. Hon." indicates membership in the British Privy Council.

Member ¹	Date When Sworn In	Member ¹	Date When Sworn In
Hon. THOMAS ALEXANDER CHERAR....	Oct. 12, 1917	Hon. GEORGE CARLYLE MARLER.....	July 1, 1954
Hon. HENRY HERBERT STEVENS.....	Sept. 21, 1921	Hon. ROCH PINARD.....	July 1, 1954
Hon. EDWARD JAMES McMURRAY.....	Nov. 14, 1923	Hon. HERBERT J. SYMINGTON.....	Nov. 26, 1956
Rt. Hon. CHARLES VINCENT MASSEY....	Sept. 16, 1925	Hon. LOUIS RENÉ BEAUDOIN.....	Apr. 15, 1957
H.R.H. The DUKE OF WINDSOR.....	Aug. 2, 1927	Hon. PAUL THEODORE HELLYER ²	Apr. 26, 1957
Hon. DONALD MATHESON SUTHERLAND..	Aug. 7, 1930	Rt. Hon. JOHN GEORGE DIEFFENBAKER.	June 21, 1957
Hon. THOMAS GEROW MURPHY.....	Aug. 7, 1930	Hon. HOWARD CHARLES GREEN.....	June 21, 1957
Hon. WILLIAM EARL ROWE.....	Aug. 30, 1935	Hon. DONALD METHUEN FLEMING.....	June 21, 1957
Hon. CHARLES GAVAN POWER.....	Oct. 23, 1935	Hon. ALFRED JOHNSON BROOKS.....	June 21, 1957
Rt. Hon. JAMES LORIMER ILSLEY.....	Oct. 23, 1935	Hon. GEORGE HEES.....	June 21, 1957
Hon. JOSEPH ENOIL MICAUD.....	Oct. 23, 1935	Hon. LÉON BALCER.....	June 21, 1957
Hon. COLIN WILLIAM GEORGE GIBSON..	July 8, 1940	Hon. GEORGE RANDOLPH PEARKES....	June 21, 1957
Hon. JOSEPH THORARINN THORSON....	June 11, 1941	Hon. GORDON CHURCHILL.....	June 21, 1957
Hon. WILLIAM FERDINAND ALPHONSE		Hon. EDMUND DAVIE FULTON.....	June 21, 1957
TURGEON.....	Oct. 8, 1941	Hon. GEORGE CLYDE NOWLAN.....	June 21, 1957
Rt. Hon. LOUIS STEPHEN ST. LAURENT.	Dec. 10, 1941	Hon. DOUGLAS SCOTT HARKNESS.....	June 21, 1957
Rt. Hon. SIR WINSTON LEONARD		Hon. ELLEN LOUKS FAIRCLOUGH.....	June 21, 1957
SPENCER CHURCHILL.....	Dec. 29, 1941	Hon. J. ANGUS MACLEAN.....	June 21, 1957
Hon. ANDREW GEORGE LATTA		Hon. MICHAEL STARR.....	June 21, 1957
McNAUGHTON.....	Nov. 2, 1944	Hon. WILLIAM McLEAN HAMILTON.....	June 21, 1957
Hon. JOSEPH ARTHUR JEAN.....	Apr. 13, 1945	Hon. JAMES MAC KERRAS MACDONNELL.	June 21, 1957
Hon. LIONEL CHEVRIER.....	Apr. 18, 1945	Hon. WILLIAM J. BROWNE.....	June 21, 1957
Hon. PAUL JOSEPH JAMES MARTIN ²	Apr. 18, 1945	Hon. PAUL COMTOIS.....	Aug. 7, 1957
Hon. DOUGLAS JAMES ABBOTT.....	Apr. 18, 1945	Hon. JAY WALDO MONTEITH.....	Aug. 22, 1957
Hon. THOMAS VIEN.....	July 19, 1945	Hon. FRANCIS ALVIN GEORGE	
Hon. WISHART McLEA ROBERTSON.....	Sept. 4, 1945	HAMILTON.....	Aug. 22, 1957
Hon. MILTON FOWLER GREGG.....	Sept. 2, 1947	H.R.H. The PRINCE PHILIP, Duke of	
Hon. ROBERT WELLINGTON MAYHEW....	June 11, 1948	Edinburgh.....	Oct. 14, 1957
Rt. Hon. LESTER BOWLES PEARSON ³ ..	Sept. 10, 1948	Hon. RAYMOND JOSEPH MICHAEL	
Hon. STUART SINCLAIR GARSON.....	Nov. 15, 1948	O'HURLEY.....	May 12, 1958
Hon. ROBERT HENRY WINTERS.....	Nov. 15, 1948	Hon. HENRI COURTEMANCHE.....	May 12, 1958
Hon. FREDERICK GORDON BRADLEY....	Apr. 1, 1949	Hon. DAVID JAMES WALKER.....	Aug. 20, 1959
Hon. CHARLES JOST BURCHELL.....	Apr. 1, 1949	Hon. JOSEPH PIERRE ALBERT SÉVIGNY.	Aug. 20, 1959
Hon. HUGUES LAPOINTE.....	Aug. 25, 1949	Hon. HUGH JOHN FLEMING.....	Oct. 11, 1960
Hon. GABRIEL EDOUARD RINFRET.....	Aug. 25, 1949	Hon. NOËL DORION.....	Oct. 11, 1960
Hon. WALTER EDWARD HARRIS.....	Jan. 18, 1950	Hon. WALTER DINSDALE.....	Oct. 11, 1960
Hon. GEORGE PRUDHAM.....	Dec. 13, 1950	Hon. GEORGE ERNEST HALPENNY.....	Oct. 11, 1960
Hon. GEORGE BLACK.....	Aug. 3, 1951	Hon. ROBERT HENRY MCGREGOR.....	Dec. 21, 1960
EARL ALEXANDER OF TUNIS.....	Jan. 29, 1952	Hon. WALTER MORLEY ABEUTINE.....	Dec. 28, 1961
Hon. JAMES SINCLAIR.....	Oct. 15, 1952	Hon. LESLIE MISCAMPBELL FROST.....	Dec. 28, 1961
Hon. RALPH OSBORNE CAMPNEY.....	Oct. 15, 1953	Hon. JACQUES FLYNN.....	Dec. 28, 1961
Hon. WILLIAM ROSS MACDONALD.....	May 12, 1953	Hon. JOHN BRACKEN.....	May 4, 1962
Hon. GEORGE ALEXANDER DREW.....	May 12, 1953	Hon. PAUL MARTINEAU.....	Aug. 9, 1962
Hon. JOHN WHITNEY PICKERSGILL ³ ..	June 12, 1953	Hon. RICHARD ALBERT BELL.....	Aug. 9, 1962
Hon. JEAN LESAGE.....	Sept. 17, 1953	Hon. MALCOLM WALLACE MCCUTCHEON.	Aug. 9, 1962

For footnotes, see end of table, p. 78.

5.—Members of the Queen's Privy Council for Canada According to Seniority Therein, as at Apr. 30, 1965—concluded

Member ¹	Date When Sworn In	Member ¹	Date When Sworn In
Hon. ROLAND MICHENER.....	Oct. 15, 1962	Hon. J. WATSON MACNAUGHT ²	Apr. 22, 1963
Hon. MARCEL LAMBERT.....	Feb. 12, 1963	Hon. ROGER TEILLET ²	Apr. 22, 1963
Hon. THÉOGÈNE RICARD.....	Mar. 18, 1963	Hon. JUDY LAMARSH ²	Apr. 22, 1963
Hon. FRANK CHARLES MCGEE.....	Mar. 18, 1963	Hon. CHARLES MILLS DRURY ²	Apr. 22, 1963
Hon. MARTIAL ASSELIN.....	Mar. 18, 1963	Hon. GUY FAVREAU ²	Apr. 22, 1963
Hon. WALTER LOCKHART GORDON ²	Apr. 22, 1963	Hon. JOHN ROBERT NICHOLSON ²	Apr. 22, 1963
Hon. MITCHELL SHARP ²	Apr. 22, 1963	Hon. HARRY HAYS ²	Apr. 22, 1963
Hon. AZELLUS DENIS.....	Apr. 22, 1963	Hon. RENÉ TREMBLAY ²	Apr. 22, 1963
Hon. GEORGE JAMES MCILRAITH ²	Apr. 22, 1963	Hon. ROBERT TASCHEREAU.....	Apr. 26, 1963
Hon. WILLIAM MOORE BENEDICKSON ²	Apr. 22, 1963	Hon. JOHN JOSEPH CONNOLLY ²	Feb. 3, 1964
Hon. ARTHUR LAING ²	Apr. 22, 1963	Hon. MAURICE SAUVÉ ²	Feb. 3, 1964
Hon. MAURICE LAMONTAGNE ²	Apr. 22, 1963	Hon. YVON DUPUIS.....	Feb. 3, 1964
Hon. LUCIEN CARDIN ²	Apr. 22, 1963	Hon. GEORGE STANLEY WHITE.....	June 25, 1964
Hon. ALLAN JOSEPH MACEachEN ²	Apr. 22, 1963	Hon. MAJOR JAMES WILLIAM COLDWELL.....	June 25, 1964
Hon. JEAN-PAUL DESCHATELETS.....	Apr. 22, 1963	Hon. EDGAR JOHN BENSON ²	June 29, 1964
Hon. HÉDARD ROBICHAUD ²	Apr. 22, 1963	Hon. LEO ALPHONSE JOSEPH CADIEUX ²	Feb. 15, 1965

¹ Members of Her Majesty's Privy Council for Canada take rank *inter se* according to the dates of their being sworn in. ² Ranks as a Member of the Cabinet. ³ Ranks as the Prime Minister of Canada.

6.—Duration and Sessions of Parliaments, 1953-65

NOTE.—Similar information for the 1st to the 12th Parliaments, covering the period from Confederation to 1917, is given in the 1940 Year Book, p. 46; that for the 13th to 17th Parliaments in the 1945 edition, p. 63; for the 18th and 19th Parliaments in the 1957-58 edition, p. 46; and for the 20th and 21st Parliaments in the 1965 edition, p. 65.

Order of Parliament	Session	Date of Opening	Date of Prorogation	Days of Session	Sitting Days of House of Commons	Date of Election, Writs Returnable, Dissolution, and Length of Parliament ^{1,2}
22nd Parliament.....	1st	Nov. 12, 1953	June 26, 1954	227	139	Aug. 10, 1953 ³ Oct. 8, 1953 ⁴ Apr. 12, 1957 ⁵ 3 y., 6 m., 5 d.
	2nd	Jan. 7, 1955	July 28, 1955	203	140	
	3rd	Jan. 10, 1956	Aug. 14, 1956	218	152	
	4th	Nov. 26, 1956	Jan. 8, 1957	44 ⁶	5	
	5th	Jan. 8, 1957	Apr. 12, 1957	95	71	
23rd Parliament.....	1st	Oct. 14, 1957	Feb. 1, 1958	111	78	June 10, 1957 ³ Aug. 8, 1957 ⁴ Feb. 1, 1958 ⁵ 5 m., 25 d.
24th Parliament.....	1st	May 12, 1958	Sept. 6, 1958	117	93	Mar. 31, 1958 ³ Apr. 30, 1958 ⁴ Apr. 19, 1962 ⁵ 3 y., 11 m., 20 d.
	2nd	Jan. 15, 1959	July 18, 1959	185	127	
	3rd	Jan. 14, 1960	Aug. 10, 1960	210	146	
	4th	Nov. 17, 1960	Sept. 28, 1961	316 ⁷	174	
	5th	Jan. 18, 1962	Apr. 18, 1962	91	65	
25th Parliament.....	1st	Sept. 27, 1962	Feb. 5, 1963 ⁸	132	72	June 18, 1962 ³ July 18, 1962 ⁴ Feb. 6, 1963 ⁵ 6 m., 20 d.
26th Parliament.....	1st	May 16, 1963	Dec. 21, 1963	220 ⁹	117	Apr. 8, 1963 ³ May 8, 1963 ⁴
	2nd	Feb. 18, 1964	Apr. 3, 1965	411 ¹⁰	248	
	3rd	Apr. 5, 1965	...	...	...

¹ The ordinary legal limit of duration for each Parliament is five years. ² Duration of Parliament in years, months and days. The life of a Parliament is counted from the date of return of election writs to the date of dissolution, both days inclusive (BNA Act, Sect. 50). ³ Date of general election. ⁴ Writs returnable. ⁵ Dissolution of Parliament. ⁶ Includes long adjournment from Nov. 29, 1956 to Jan. 8, 1957. ⁷ Includes long adjournment from July 13 to Sept. 7, 1961. ⁸ Government defeated in House of Commons on want of confidence motion. ⁹ Includes long adjournment from Aug. 2 to Sept. 30, 1963. ¹⁰ Includes long adjournment from Dec. 18, 1964 to Feb. 16, 1965.

Subsection 2.—The Legislature

The federal legislative authority is vested in the Parliament of Canada consisting of The Queen, an Upper House styled the Senate, and the House of Commons. Bills may originate in either the Senate or the House subject to the provisions of Sect. 53 of the British North America Act, 1867, which provides that Bills for the appropriation of any part of the public revenue or the imposition of any tax or impost shall originate in the House of Commons. Bills must pass both Houses and receive Royal Assent before becoming law. In practice most public Bills originate in the House of Commons, although there has been a marked increase recently in the introduction of public Bills in the Senate, at the instance of the Government, in order that Bills may be dealt with in the Senate while the Commons is engaged in other matters such as the debate on the Speech from the Throne. Private Bills usually originate in the Senate. The Senate may delay, amend or even refuse to pass Bills sent to it from the Commons, but differences are usually settled without serious conflict. (See Chap. XXVII for current legislation.)

Under Sect. 91 of the British North America Acts, 1867 to 1964, the legislative authority of the Parliament of Canada extends to the following: the amendment of the Constitution of Canada (subject to certain exceptions—see p. 71); the public debt and property; the regulation of trade and commerce; unemployment insurance; the raising of money by any mode or system of taxation; the borrowing of money on the public credit; postal service; the Census and statistics; militia, military and naval service, and defence; the fixing of and providing for the salaries and allowances of civil and other officers of the Government of Canada; beacons, buoys, lighthouses and Sable Island; navigation and shipping; quarantine and the establishment and maintenance of marine hospitals; sea coast and inland fisheries; ferries between a province and any British or foreign country or between two provinces; currency and coinage, banking, incorporation of banks and the issue of paper money; savings banks; weights and measures; bills of exchange and promissory notes; interest; legal tender; bankruptcy and insolvency; patents of invention and discovery; copyrights; Indians and lands reserved for the Indians; naturalization and aliens; marriage and divorce; the criminal law, except the constitution of courts of criminal jurisdiction, but including the procedure in criminal matters; the establishment, maintenance and management of penitentiaries; such classes of subjects as are expressly excepted in the enumeration of the classes of subjects by these Acts assigned exclusively to the legislatures of the provinces.

Under Sect. 95, the Parliament of Canada may make laws in relation to agriculture and immigration concurrently with provincial legislatures although federal legislation is paramount in the event of conflict. By the British North America Act, 1951 (Br. Stat. 1950-51, c. 32) it is declared that the Parliament of Canada may make laws in relation to old age pensions in Canada but no such law shall affect the operation of any provincial laws in relation to old age pensions. By the British North America Act, 1964, which received Royal Assent on July 31, 1964, this amendment was extended, at the request of the Parliament of Canada (June 19, 1964) to permit the payment of supplementary benefits, including survivors' and disability benefits irrespective of age, under a contributory pension plan.

The Senate.—From an original membership of 72 at Confederation, the Senate, through the addition of new provinces and the general growth of population, now has 102 members, the latest change in representation having been made on the admission of Newfoundland to Confederation in 1949. The growth of representation in the Senate is summarized by province in Table 7.

Senators are appointed by the Governor General by instrument under the Great Seal of Canada. The actual power of appointing Senators resides by constitutional usage in the Prime Minister whose advice the Governor General accepts in this regard. Until the passage of "An Act to make provision for the retirement of members of the Senate" (SC

1965, c. 4), assented to on June 2, 1965, Senators were appointed for life; that Act fixes at 75 years the age at which any person appointed to the Senate after the coming into force of the Bill will cease to hold his place in the Senate.

In each of the four main divisions of Canada, except Quebec, Senators represent the whole of the province for which they are appointed; in Quebec one Senator is appointed for each of the 24 electoral divisions of what was formerly Lower Canada. The deliberations of the Senate are presided over by a Speaker appointed by the Governor General in Council (in effect by the Government) and government business in the Senate is sponsored by the Government Leader in the Senate.

The Senate is not a competitor of the House of Commons in the field of legislation but, in the main, acts as a second chamber giving further scrutiny to legislation initiated in the House of Commons. Under the Constitution, Bills for appropriating any part of the public revenue or for imposing a tax or impost must originate in the Commons but in every other respect, since both Houses must concur in every piece of legislation, the Senate has an equal voice with the House of Commons.

7.—Representation in the Senate since Confederation, 1867

Province	1867	1870	1871	1873	1882	1887	1892	1903	1905	1915-1945	1949-1964
Ontario.....	24	24	24	24	24	24	24	24	24	24	24
Quebec.....	24	24	24	24	24	24	24	24	24	24	24
Atlantic Provinces.....	24	24	24	24	24	24	24	24	24	24	30
Nova Scotia.....	12	12	12	10	10	10	10	10	10	10	10
New Brunswick.....	12	12	12	10	10	10	10	10	10	10	10
Prince Edward Island.....	...	...	...	4	4	4	4	4	4	4	4
Newfoundland.....	...	...	...	...	...	...	...	...	...	...	6
Western Provinces.....	...	2	5	5	6	8	9	11	15	24	24
Manitoba.....	...	2	2	2	3	3	4	4	4	6	6
British Columbia.....	...	...	3	3	3	3	3	3	3	6	6
Saskatchewan.....	...	...	...	...	...	2	2	4	4	6	6
Alberta.....	...	...	...	...	...	...	...	...	...	...	...
Totals.....	72	74	77	77	78	80	81	83	87	96	102

8.—Members of the Senate, by Province, as at Apr. 30, 1965¹

Speaker.....	HON. MAURICE BOURGET
Leader of the Government.....	HON. JOHN J. CONNOLLY
Leader of the Opposition.....	HON. ALFRED J. BROOKS
Clerk of the Senate and Clerk of the Parliaments.....	JOHN FORBES MACNEILL

(Ranked according to seniority, by province. All Senators are entitled to the designation "Honourable".)

Province and Name of Senator	P.O. Address	Province and Name of Senator	P.O. Address
Newfoundland— (5 Senators—1 vacancy)		Nova Scotia— (10 Senators)	
BAIRD, ALEXANDER BOYD.....	St. John's	ROBERTSON, WISHART McLEA.....	Truro
BASHA, MICHAEL G.....	Curling	KINLEY, JOHN JAMES.....	Lunenburg
BRADLEY, FREDERICK GORDON.....	Bonavista	COMEAU, JOSEPH WILLIE.....	Comeauville
HOLLETT, MALCOLM.....	St. John's	ISNOR, GORDON B.....	Halifax
COOK, ERIC.....	St. John's	SMITH, DONALD.....	Liverpool
Prince Edward Island— (4 Senators)		CONNOLLY, HAROLD.....	Halifax
GRANT, THOMAS VINCENT.....	Montague	BLOIS, FREDERICK MURRAY.....	Truro
INMAN, FLORENCE ELSIE.....	Montague	MACDONALD, JOHN MICHAEL.....	North Sydney
MACDONALD, JOHN JOSEPH.....	Charlottetown	O'LEARY, CLEMENT AUGUSTINE....	Antigonish
PHILLIPS, ORVILLE HOWARD.....	Alberton	WELCH, FRANK C.....	Wolfville

¹ Changes occurring between Apr. 30, 1965 and the date of going to press will be carried in an Appendix to this volume.

8.—Members of the Senate, by Province, as at Apr. 30, 1965—concluded

Province and Name of Senator	P.O. Address	Province and Name of Senator	P.O. Address
New Brunswick— (9 Senators—1 vacancy)		Ontario—concluded	
VENIOT, CLARENCE JOSEPH.....	Bathurst	MACDONALD, WILLIAM ROSS.....	Brantford
MCLAN, ALEXANDER NEIL.....	Saint John	CONNOLLY, JOHN J.....	Ottawa
BURCHILL, GEORGE PERCIVAL.....	South Nelson	CROLL, DAVID A.....	Toronto
FERGUSON, MURIEL MCQUEEN.....	Fredericton	LEONARD, THOMAS D'ARCY.....	Toronto
MCGRAND, FRED A.....	Fredericton Jct.	WHITE, GEORGE STANLEY.....	Madoc
SAVOIE, CALIXTE F.....	Moncton	SULLIVAN, JOSEPH A.....	Toronto
BROOKS, ALFRED JOHNSON.....	Sussex	CHOQUETTE, LIONEL.....	Ottawa
FOURNIER, EDGAR.....	Iroquois	WILLIS, HARRY A.....	Toronto
RATTENBURY, NELSON.....	Saint John	McCUTCHEON, M. WALLACE.....	Toronto
		O'LEARY, M. GRATTAN.....	Ottawa
		GROSART, ALLISTER.....	Ottawa
		WALKER, DAVID JAMES.....	Toronto
		BELISLE, RÉAL.....	Sudbury
		LANG, DANIEL AIKEN.....	Toronto
		AIRD, JOHN BLACK.....	Toronto
Quebec— (23 Senators—1 vacancy)		Manitoba— (6 Senators)	
HUGESSEN, ADRIAN K.....	Montreal	BEAUBIEN, ARTHUR L.....	St. Jean Baptiste
GOUIN, LÉON MERCIER.....	Montreal	CRERA, THOMAS ALEXANDER.....	Winnipeg
VIGN, THOMAS.....	Outremont	THORVALDSON, GUNNAR S.....	Winnipeg
VAILLANCOURT, CYRILLE.....	Lévis	IRVINE, OLIVE LULLIAN.....	Winnipeg
DUPUIS, VINCENT.....	Montreal	HAIG, J. CAMPBELL.....	Winnipeg
DESSUREAULT, JEAN-MARIE.....	Quebec	YUZTK, PAUL.....	Winnipeg
BOUFFARD, PAUL HENRI.....	Quebec		
JODOIN, MARIANA BEAUCHAMP.....	Montreal		
TREMBLAY, LEONARD DAVID			
SWEEZEY.....	St. Malachie		
FOURNIER, SARTO.....	Montreal		
MOLSON, HARTLAND DE			
MONTARVILLE.....	Montreal		
POWER, CHARLES GAVAN.....	St. Pacôme		
POULIOT JEAN-FRANÇOIS.....	Rivière du Loup		
LEFRANÇOIS, J. EUGÈNE.....	Montreal		
MÉTHOT, LÉON.....	Trois-Rivières		
MONETTE, GUSTAVE.....	Montreal		
QUART, JOSIE ALICE DINAN.....	Quebec		
BEAUBIEN, LOUIS PHILIPPE.....	Montreal		
FLYNN, JACQUES.....	Quebec		
BOURGET, MAURICE.....	Lévis		
GÉLINAS, LOUIS P.....	Montreal		
BOURQUE, ROMUALD.....	Outremont		
DENIS, AZELLUS.....	Montreal		
Ontario— (23 Senators—1 vacancy)		Saskatchewan— (5 Senators—1 vacancy)	
LAMBERT, NORMAN P.....	Ottawa	ASELTINE, WALTER M.....	Rosetown
HAYDEN, SALTER ADRIAN.....	Toronto	WOOD, THOMAS H.....	Regina
PATERSON, NORMAN MCLEOD.....	Fort William	BOUCHER, WILLIAM ALBERT.....	Prince Albert
DAVIES, WILLIAM RUPERT.....	Toronto	PEARSON, ARTHUR M.....	Lumsden
TAYLOR, WILLIAM HORACE.....	Brantford	HNATYSHYN, JOHN.....	Saskatoon
BISHOP, CHARLES L.....	Ottawa		
ROEBUCK, ARTHUR WENTWORTH.....	Toronto		
WOODROW, ALLAN L.....	Toronto		
		Alberta— (5 Senators—1 vacancy)	
		GERSHAW, FRED WILLIAM.....	Medicine Hat
		STAMBAUGH, J. WESLEY.....	Bruce
		CAMERON, DONALD.....	Edmonton
		GLADSTONE, JAMES.....	Cardston
		BUCHANAN, JOHN ALEXANDER.....	Edmonton
		British Columbia— (5 Senators—1 vacancy)	
		FARRIS, JOHN WALLACE DE B.....	Vancouver
		MC KEEN, STANLEY STEWART.....	Vancouver
		REID, THOMAS.....	New Westminster
		HODGES, NANCY.....	Victoria
		SMITH, SYDNEY JOHN.....	Kamloops

The House of Commons.—The British North America Act, 1867 provided that in respect of representation in the House of Commons the Province of Quebec should have the fixed number of sixty-five members and that there should be assigned to each of the other provinces such a number of members as would bear the same proportion to the number of its population as the number sixty-five bears to the number of the population of Quebec. This Act also provided that on the completion of a census in 1871 and of each subsequent decennial census the representation of the several provinces should be re-adjusted provided the proportionate representation of the provinces as prescribed by the Act were not thereby disturbed.

In the session of 1946 the House of Commons adopted a resolution stating that the effect of the provisions of the British North America Act relating to representation had not been satisfactory in that proportionate representation of the provinces according to population had not been maintained and that a more equitable apportionment of members to the various provinces could be effected if readjustments were made on the basis of the

population of all the provinces taken as a whole. The Act was amended accordingly in 1946 to provide a new rule to regulate representation in the House of Commons. Generally speaking, representation was fixed as follows:—

The membership assigned to each province shall be computed by dividing the total population of the provinces by two hundred and fifty-four and by dividing the population of each province by the quotient so obtained.

This rule, employed in the redistribution of representation made in 1947, was effective in the General Election of 1949.

After the completion of the 1951 Census it was apparent that, as a result of a wartime shift of population, a substantial reduction in the representation of the Province of Saskatchewan would ensue under the rules then regulating representation. Accordingly, in an effort to eliminate sharp reductions in provincial representation from one census to another, the British North America Act was again amended (RSC 1952, c. 304, Sect. 51) (see Canada Year Book 1963-64, p. 75) to ensure that the representation of any province should not be reduced by more than 15 p.c. at any one readjustment, subject however to the qualification that the effect of the rule should not be to make the representation of a province with a smaller population greater than any province with a larger population.

Subsequently in 1952, Parliament enacted RSC 1952, c. 334, effective in the General Election of 1953 and in each successive General Election down to that of the Twenty-sixth Parliament (Apr. 8, 1963), which provided that representation in the House of Commons should be on the following basis:—

“Sect. 2.—Eighty-five members of the House of Commons shall be elected for the Province of Ontario, seventy-five for the Province of Quebec, twelve for the Province of Nova Scotia, ten for the Province of New Brunswick, fourteen for the Province of Manitoba, twenty-two for the Province of British Columbia, four for the Province of Prince Edward Island, seventeen for the Province of Saskatchewan, seventeen for the Province of Alberta, seven for the Province of Newfoundland, one for the Yukon Territory and one for Mackenzie district of the Northwest Territories, thus making a total of two hundred and sixty-five members.”

The number of representatives of each province elected at each of the 26 General Elections since Confederation is given in Table 9.

9.—Representation in the House of Commons, as at Federal General Elections 1867-1963

Province or Territory	1867	1872	1874 1878	1882	1887 1891	1896 1900	1904	1908 1911	1917 1921	1925 1926 1930	1935 1940 1945	1949	1953 1957 1958 1962 1963
Ontario.....	82	88	88	92	92	92	86	86	82	82	82	83	85
Quebec.....	65	65	65	65	65	65	65	65	65	65	65	73	75
Nova Scotia.....	19	21	21	21	21	20	18	18	16	14	12	13	12
New Brunswick.....	15	16	16	16	16	14	13	13	11	11	10	10	10
Manitoba.....	...	4	4	5	5	7	10	10	15	17	17	16	14
British Columbia.....	...	6	6	6	6	6	7	7	13	14	16	18	22
Prince Edward Island.....	...	...	6	6	6	5	4	4	4	4	4	4	4
Saskatchewan.....	...	...	...	...	...	...	...	10	16	21	21	20	17
Alberta.....	...	...	...	...	4	4	10	7	12	16	17	17	17
Yukon Territory.....	...	...	...	...	...	...	...	...	...	...	...	...	1
Mackenzie River, N.W.T.)	...	...	...	...	...	...	1	1	1	1	1	1	1
Newfoundland.....	...	...	...	...	...	...	...	...	...	...	...	7	7
Totals.....	181	200	206	211	215	213	214	221	235	245	245	262	265

¹ Northwest Territories in 1963.

The Electoral Boundaries Readjustment Act was passed by the House of Commons and given Royal Assent on Nov. 20, 1964. This Act is the result of Sect. 51 (1) of the British North America Act which requires a readjustment of the representation of the provinces on the completion of each decennial census. The Electoral Boundaries Readjustment Act provides for the establishment of 10 Commissions, one for each province, to consider and report upon the readjustment of the representation of the provinces in the House of Commons.

Each Commission has one year in which to complete its report, which shall be transmitted to the Speaker who shall cause such report to be laid before the House of Commons. The report shall set forth the Commission's recommendations concerning the division of that province into electoral districts and its recommendations concerning the description of the boundaries of each such district and the representation and name to be given thereto.

10.—Electoral Districts, Voters on List and Votes Polled, Names and Addresses of Members of the House of Commons as Elected at the Twenty-sixth General Election, Apr. 8, 1963 and Revised to Apr. 30, 1965.

Speaker.....	Hon. ALAN A. MACNAUGHTON
Prime Minister.....	Rt. Hon. LESTER B. PEARSON
Leader of the Opposition.....	Rt. Hon. JOHN G. Diefenbaker
Clerk of the House of Commons.....	LÉON J. RAYMOND

NOTE.—The vote is summarized by provinces in Table 12, p. 90. The leaders of the political parties are indicated by asterisks (*). For Parliamentary Secretaries, see p. 76. This information, except the population of constituencies, has been supplied by the Chief Electoral Officer. Party affiliations are unofficial. Lib.=Liberal; P.C.=Progressive Conservative; S.C.=Social Credit; N.D.P.=New Democratic Party; R.c.=Ralliement créditiste; L.-Lab.=Liberal-Labour; Ind.=Independent.

Province and Electoral District	Population, Census 1961	Voters on List	Total Votes Polled	Votes Polled by Member	Name of Member	P.O. Address	Party Affiliation
	No.	No.	No.	No.			
Newfoundland— (7 members)							
Bonavista-Twillingate..	50,527	24,706	16,185	11,748	Hon. J. W. PICKERSGILL	Ottawa, Ont.....	Lib.
Burin-Burgoe.....	48,673	22,684	14,682	12,167	C. W. CARTER.....	St. John's.....	Lib.
Grand Falls-White Bay-Labrador.....	82,433	41,239	25,077	18,233	C. R. M. GRANGER.....	St. John's.....	Lib.
Humber-St. George's..	74,015	32,151	22,897	13,605	H. M. BATTEN.....	Corner Brook.....	Lib.
St. John's East.....	77,070	38,018	28,854	14,768	J. P. O'KEEFE.....	St. John's.....	Lib.
St. John's West.....	68,979	33,693	26,327	14,724	R. J. CASHIN.....	St. John's.....	Lib.
Trinity-Conception..	56,156	28,830	17,253	12,331	J. R. TUCKER.....	St. John's.....	Lib.
Prince Edward Island— (4 members)							
Kings.....	17,893	9,969	9,108	4,705	J. MULLALLY.....	Souris.....	Lib.
Prince.....	40,894	20,588	17,675	8,967	Hon. J. W. MACNAUGHT	Ottawa, Ont.....	Lib.
Queens.....	45,842	26,472	42,703	11,666	Hon. J. A. MACLEAN.....	Lewis, Beaton Mills.....	P.C.
				11,608	H. N. MACQUARRIE.....	Victoria.....	P.C.
Nova Scotia— (12 members)							
Antigonish.....							
Guysborough.....	27,634	14,905	12,852	6,947	J. B. STEWART.....	Bayfield.....	Lib.
Cape Breton North-Victoria.....	50,957	25,646	21,490	10,508	R. MUIR.....	Sydney Mines....	P.C.
Cape Breton South..	85,001	42,671	36,986	14,307	D. MACINNIS.....	Glace Bay.....	P.C.
Colchester-Hants.....	60,751	34,513	29,511	14,387	C. F. KENNEDY.....	Truro.....	P.C.
Cumberland.....	37,767	21,573	18,079	9,034	R. C. COATES.....	Amherst.....	P.C.
Digby-Annapolis-Kings	76,073	39,793	34,091	16,887	Hon. G. C. NOWLAN.....	Wolfville.....	Lib.
Halifax.....	225,723	122,846	183,402	46,274	J. E. LLOYD.....	Halifax.....	Lib.
				45,173	G. A. REGAN.....	Halifax.....	Lib.
Inverness-Richmond..	33,907	19,068	15,448	8,373	Hon. A. J. MACEachern	Ottawa, Ont.....	Lib.
Pictou.....	43,908	24,809	20,793	10,566	H. R. MACEWAN.....	New Glasgow....	P.C.
Queens-Lunenburg..	48,153	29,654	24,105	12,591	L. R. CROUSE.....	Lunenburg.....	P.C.
Shelburne-Yarmouth-Clare	47,133	26,366	22,595	11,607	F. T. ARMSTRONG.....	Yarmouth.....	Lib.
New Brunswick— (10 members)							
Charlotte.....	23,285	13,726	11,939	6,279	A. M. A. McLEAN.....	Blacks Harbour..	Lib.
Gloucester.....	66,343	29,182	23,423	13,344	Hon. H.-J. ROBICHAUD	Ottawa, Ont.....	Lib.
Kent.....	26,667	12,294	10,077	5,971	G. CROSSMAN.....	Buctouche.....	Lib.
Northumberland-Miramichi..	50,035	23,240	18,182	10,148	G. R. McWILLIAM.....	Newcastle.....	Lib.
Restigouche-Madawaska..	79,956	36,012	29,139	14,111	J.-E. DURÉ.....	Campbellton.....	Lib.
Royal.....	37,548	21,806	17,882	9,524	R. G. L. FAIRWEATHER	Rothsay.....	P.C.
Saint John-Albert.....	101,736	57,601	42,112	21,584	T. M. BELL.....	Saint John.....	P.C.
Victoria-Carleton.....	43,219	22,180	18,039	10,572	Hon. H. J. FLEMING.....	Juniper.....	P.C.
Westmorland.....	93,679	50,361	41,905	19,989	S. H. RIDEOUT.....	Moncton.....	Lib.
York-Sunbury.....	75,468	38,330	32,859	15,827	J. C. MACRAE.....	Fredericton.....	P.C.

¹ Died May 29, 1963; see Table 11 for by-election.

10.—Electoral Districts, Voters on List and Votes Polled, Names and Addresses of Members of the House of Commons as Elected at the Twenty-sixth General Election, Apr. 8, 1963 and Revised to Apr. 30, 1965—continued.

Province and Electoral District	Population, Census 1961	Voters on List	Total Votes Polled	Votes Polled by Member	Name of Member	P.O. Address	Party Affiliation
	No.	No.	No.	No.			
Quebec—							
(75 members)							
Argenteuil-Deux-Montagnes.....	64,667	34,905	29,027	12,324	V. DROUIN.....	St. Eustache.....	Lib.
Beauce.....	61,332	30,234	25,211	12,627	G. PERRON.....	St. Joseph de Beauce.....	S.C. ¹
Beauharnois-Salaberry.....	70,191	38,619	31,299	15,892	G. LAMIEL.....	Valleyfield.....	Lib.
Bellechasse.....	32,513	15,834	12,336	5,434	H. LAVERDIÈRE.....	St. Lazare Village.....	Lib.
Berthier-Maskinongé.....							
Delanaudière.....	48,749	25,806	20,573	8,471	R. PAUL.....	Louiseville.....	P.C. ²
Bonaventure.....	42,962	20,632	16,304	9,092	A. BÉCHARD.....	Carleton sur Mer.....	Lib.
Brome-Missisquoi.....	43,217	23,734	18,971	8,411	W. H. GRAFFTEY.....	Knowlton.....	P.C.
Chambly-Rouville.....	60,959	32,287	24,770	13,850	B. PILON.....	Beleuil.....	Lib.
Champlain.....	63,086	32,715	27,987	12,446	J.-P. MARTE.....	St. Tite.....	Lib.
Chapleau.....	71,394	33,901	25,130	14,701	G. LAFRISSE.....	La Sarre.....	S.C. ¹
Charlevoix.....	48,906	24,136	20,184	7,390	L.-P.-A. BÉLANGER.....	Beaupré.....	S.C. ¹
Châteauguay.....							
Huntingdon-Laprairie.....	61,729	33,660	23,262	10,746	I. WATSON.....	Howick.....	Lib.
Chicoutimi.....	83,635	38,087	31,541	14,581	M. CÔTÉ.....	Chicoutimi North.....	S.C.
Compton-Frontenac.....	42,366	20,227	15,931	6,234	H. LATULIPE.....	Lac Mégantic.....	S.C. ¹
Dorchester.....	38,953	18,049	14,332	5,830	P.-A. BOUTIN.....	Ste. Marguerite de Dorchester.....	S.C. ¹
Drummond- Arthabaska.....	89,851	45,601	37,184	17,338	J.-L. PÉPIN.....	Drummondville.....	Lib.
Gaspé.....	65,300	29,804	23,982	10,738	A. CYR.....	Chandler.....	Lib.
Gatineau.....	58,771	31,116	25,030	11,589	R. LÉBUC.....	Maniwaki.....	Lib.
Hull.....	86,563	44,713	37,379	19,667	A. CARON.....	Hull.....	Lib.
Îles-de-la-Madeleine.....	12,479	5,556	4,827	3,053	M. SAUVÉ.....	Montreal.....	Lib.
Joliette-L'Assomption- Montcalm.....	102,717	54,060	38,117	18,103	L.-J. PIGEON.....	Joliette.....	P.C.
Kamouraska.....	35,312	17,736	12,967	6,286	C.-E. DIONNE.....	St. Pascal.....	S.C. ¹
Labelle.....	45,701	22,228	17,487	6,951	G. GIBOUARD.....	Mont Laurier.....	S.C. ¹
Lac-Saint-Jean.....	48,149	21,777	18,606	9,318	M. LESSARD.....	Alma.....	S.C.
Lapointe.....	74,408	33,482	28,455	13,312	G. GRÉGOIRE.....	Lapointe.....	S.C. ¹
Lévis.....	49,047	27,374	23,778	9,634	R. GUAY.....	Lauzon.....	Lib.
Longueuil.....	107,318	56,390	43,030	17,223	J.-P. CÔTÉ.....	Longueuil.....	Lib.
Lotbinière.....	38,529	18,301	16,028	6,957	A. CHOQUETTE.....	Quebec.....	Lib.
Matapédia-Matane.....	67,226	29,145	24,079	10,265	Hon. R. TREMBLAY.....	Ottawa, Ont.....	Lib.
Mégantic.....	70,064	33,276	26,055	11,329	R.-C. LANGLOIS.....	Thetford Mines.....	S.C. ¹
Montmagny-L'Islet.....	40,987	20,591	16,076	7,096	J. BERGER.....	Montmagny.....	Lib.
Nicolet-Yamaska.....	45,192	23,968	19,767	9,438	C. VINCENT.....	Ste. Perpétue.....	P.C.
Pontiac- Témiscamingue.....	41,069	20,000	17,029	6,449	Hon. P. MARTINEAU.....	Campbell's Bay.....	P.C.
Portneuf.....	48,137	25,385	20,564	11,473	J.-L. FRENETTE.....	St. Marc des Carrières.....	S.C.
Quebec East.....	92,170	54,163	44,873	18,661	R. BEAULÉ.....	Quebec.....	S.C. ¹
Quebec South.....	54,535	36,316	30,178	16,314	J.-C. CANTIN.....	Quebec.....	Lib.
Quebec West.....	57,763	33,006	27,539	13,136	L. PLOURDE.....	Quebec.....	S.C. ¹
Quebec-Montmorency.....	138,030	76,279	62,953	28,147	G. MARCOUX.....	Beauport.....	S.C.
Richelieu-Verchères.....	60,832	34,040	26,887	14,194	Hon. L. CARDIN.....	Ottawa, Ont.....	Lib.
Richmond-Wolfe.....	60,534	28,473	22,195	8,762	P.-T. ASSELIN.....	Bromptonville.....	Lib.
Rimouski.....	75,076	35,921	29,394	12,414	G. OUELLET.....	St. Mathieu.....	S.C. ³
Rivière-du-Loup- Témiscouata.....	58,909	26,916	22,710	10,753	R. GENDRON.....	Rivière du Loup.....	Lib.
Roberval.....	56,234	24,570	20,107	10,345	C.-A. GAUTHIER.....	Mistassini.....	S.C. ¹
Saint-Hyacinthe- Bagot.....	63,942	35,276	26,674	13,716	Hon. T. RICARD.....	St. Hyacinthe.....	P.C.
Saint-Jean-Iberville- Napierville.....	65,464	33,514	28,118	14,656	Y. DUPUIS.....	St. Jean.....	Lib.
Saint-Maurice-Lafleche.....	86,296	43,828	36,168	16,358	J. CHRÉTIEN.....	Shawinigan.....	Lib.
Saguenay.....	81,097	46,781	32,853	13,896	G. BLOUIN.....	Sept Îles.....	Lib.
Shefford.....	67,962	35,104	26,815	9,989	G. RONDEAU.....	St. Césaire.....	S.C. ¹
Sherbrooke.....	73,417	41,514	32,067	12,708	G. CHAPDELAINE.....	Sherbrooke.....	S.C.
Stanstead.....	43,309	23,844	18,899	7,649	Y. FOREST.....	Magog.....	Lib.
Terrebonne.....	102,450	55,872	41,716	19,015	L. CADIEUX.....	St. Jérôme.....	Lib.

¹ R.cr. from September 1963.² Ind. from Feb. 18, 1965.³ P.C. from Apr. 25, 1964.

10.—Electoral Districts, Voters on List and Votes Polled, Names and Addresses of Members of the House of Commons as Elected at the Twenty-sixth General Election, Apr. 8, 1963 and Revised to Apr. 30, 1965—continued.

Province and Electoral District	Population, Census 1961	Voters on List	Total Votes Polled	Votes Polled by Member	Name of Member	P.O. Address	Party Affiliation
No.	No.	No.	No.	No.			
Quebec—concluded							
Trois-Rivières.....	68,854	39,790	32,845	14,558	Hon. L. BALCER.....	Trois-Rivières.....	P.C. ¹
Vaudreuil-Soulanges.....	38,756	21,061	17,532	8,639	R. EMARD.....	Île Perrot.....	Lib.
Villeneuve.....	79,675	36,305	30,115	18,096	R. CAQUETTE ²	Rouyn.....	S.C. ²
Montreal and Jesus Islands—							
Cartier.....	51,819	19,444	13,842	6,642	M. L. KLEIN.....	Montreal.....	Lib.
Doherty.....	107,394	58,212	41,808	23,764	G. ROULEAU.....	Montreal.....	Lib.
Hochelega.....	79,912	46,587	28,717	13,093	R. EUDES.....	Montreal.....	Lib.
Jacques-Cartier—							
Lasalle.....	163,148	94,681	76,086	44,299	R. ROCK.....	Lachine.....	Lib.
Lafontaine.....	50,325	31,411	21,975	10,929	G.-C. LACHANCE.....	Montreal.....	Lib.
Laurier.....	45,652	26,870	18,226	8,059	Hon. L. CHEVRIER ³	Ottawa, Ont.....	Lib.
Laval.....	193,437	112,822	81,825	43,452	J.-L. ROCHON.....	Montreal.....	Lib.
Maisonneuve—							
Rosemont.....	108,023	64,850	42,704	20,595	Hon. J.-P. DESCHATELETS.....	Ottawa, Ont.....	Lib.
Mercier.....	233,964	120,083	80,904	33,450	P. BOULANGER.....	Montreal.....	Lib.
Mont-Royal.....	128,524	74,982	54,180	37,648	Hon. A. A. MACNAUGHTON.....	Ottawa, Ont.....	Lib.
Notre-Dame-de-Grâce.....	100,719	61,237	47,731	30,532	E.-T. ASSELIN.....	Montreal.....	Lib.
Outremont-Saint-Jean.....	63,888	33,945	23,856	13,305	Hon. M. LAMONTAGNE.....	Ottawa, Ont.....	Lib.
Papineau.....	87,588	48,526	30,605	15,677	Hon. G. FAVREAU.....	Ottawa, Ont.....	Lib.
St. Ann.....	38,173	19,601	12,989	7,215	G. LOISELLE.....	Montreal.....	Lib.
Saint-Antoine—							
Westmount.....	59,609	38,175	27,731	16,635	Hon. C. M. DRURY.....	Ottawa, Ont.....	Lib.
Saint-Denis.....	65,090	36,516	23,341	11,707	Hon. A. DENIS ⁴	Ottawa, Ont.....	Lib.
Saint-Henri.....	71,691	39,202	27,604	13,981	H.-P. LESSARD.....	Montreal.....	Lib.
Saint-Jacques.....	54,679	33,045	20,592	7,841	M. RINFRET.....	Montreal.....	Lib.
St. Lawrence—							
St. George.....	34,020	22,294	14,880	8,552	J. N. TURNER.....	Montreal.....	Lib.
Sainte-Marie.....	56,455	32,253	20,491	8,549	G.-J. VALADE.....	Montreal.....	P.C.
Verdun.....	78,317	46,396	35,223	19,473	B. S. MACKASEY.....	Verdun.....	Lib.
Ontario—							
(85 members)							
Algoma East.....	54,868	25,104	20,897	10,817	Rt. Hon. L. B. PEARSON*.....	Ottawa.....	Lib.
Algoma West.....	80,542	41,161	34,132	14,023	G. E. NIXON.....	Sault Ste. Marie.....	Lib.
Brantford.....	54,392	30,700	25,115	10,804	J. E. BROWN.....	Brantford.....	Lib.
Brant-Haldimand.....	57,644	32,337	26,576	12,733	L. T. PENNELL.....	Brantford.....	Lib.
Bruce.....	29,334	17,382	14,541	7,451	J. LONEY.....	Tiverton.....	P.C.
Carleton.....	130,497	77,910	67,728	32,325	C. L. FRANCIS.....	Ottawa.....	Lib.
Cochrane.....	47,854	24,613	18,951	7,809	J.-A. HABEL.....	Kapuskasing.....	Lib.
Dufferin-Simcoe.....	53,226	26,173	21,738	10,278	J. E. MADILL.....	Orangeville.....	P.C.
Durham.....	39,916	21,873	18,994	8,720	R. C. HONEY.....	Port Hope.....	Lib.
Elgin.....	62,862	33,890	28,924	13,957	J. A. MCBAIN.....	St. Thomas.....	P.C.
Essex East.....	99,432	53,589	43,520	25,727	Hon. P. MARTIN.....	Ottawa.....	Lib.
Essex South.....	55,816	29,631	25,725	12,947	E. F. WIELAN.....	Amherstburg.....	Lib.
Essex West.....	101,526	55,689	41,877	23,165	H. E. GRAY.....	Windsor.....	Lib.
Fort William.....	57,642	30,885	26,436	11,765	H. BADANAL.....	Fort William.....	Lib.
Glenagarry-Prescott.....	46,443	24,336	20,057	9,906	V. ETHIER.....	Glen Robertson.....	Lib.
Grenville-Dundas.....	40,026	22,592	18,155	10,434	JEAN CASSELMAN (WADDs).....	Prescott.....	P.C.
Grey-Bruce.....	36,883	21,648	18,593	10,535	E. A. WINKLER.....	Hanover.....	P.C.
Grey North.....	33,824	23,110	19,225	9,804	P. V. NOBLE.....	Shallow Lake.....	P.C.
Halton.....	107,285	59,151	49,368	25,482	H. C. HARLEY.....	Oakville.....	Lib.
Hamilton East.....	65,287	36,132	28,397	13,167	J. C. MUNRO.....	Hamilton.....	Lib.
Hamilton South.....	121,161	67,669	54,451	19,205	W. D. HOWE.....	Hamilton.....	N.D.P.
Hamilton West.....	72,131	41,264	31,380	13,701	J. MACALUSO.....	Hamilton.....	Lib.
Hastings-Frontenac.....	48,217	26,206	20,637	12,321	R. A. WEBB.....	Norwood.....	P.C.
Hastings South.....	70,806	37,041	32,228	15,505	R. TEMPLE.....	Belleville.....	Lib.
Huron.....	48,355	26,076	22,547	12,224	L. E. CARDIFF.....	Brussels.....	P.C.
Kenora-Rainy River.....	72,775	36,006	27,327	16,794	Hon. W. M. BENEDICKSON.....	Ottawa.....	L-Lab.
Kent.....	71,285	39,541	32,307	15,381	H. W. DANFORTH.....	Blenheim.....	P.C.
Kingston.....	76,485	40,993	34,198	18,425	E. J. BENSON.....	Kingston.....	Lib.

¹ Ind. from Apr. 7, 1965.² Leader of R.cr. formed September 1963.³ Resigned Dec. 27, 1963;

appointed High Commissioner to Britain Feb. 3, 1964; see Table 11 for by-election.

⁴ Resigned Dec. 27,

1963; appointed to the Senate Feb. 3, 1964; see Table 11 for by-election.

10.—Electoral Districts, Voters on List and Votes Polled, Names and Addresses of Members of the House of Commons as Elected at the Twenty-sixth General Election, Apr. 8, 1963 and Revised to Apr. 30, 1965—continued.

Province and Electoral District	Population, Census 1961	Voters on List	Total Votes Polled	Votes Polled by Member	Name of Member	P.O. Address	Party Affiliation
No.	No.	No.	No.	No.			
Ontario—concluded							
Lambton—Kent.....	43,235	24,323	20,233	9,520	Mac T. McCUTCHEON...	Florence.....	P.C.
Lambton West.....	78,482	41,342	32,760	15,978	W. F. FOY.....	Sarnia.....	Lib.
Lanark.....	40,081	22,565	18,579	10,475	G. H. DOUCETT.....	Carleton Place.....	P.C.
Leeds.....	47,121	26,867	22,183	12,113	J. R. MCNEILSON.....	Brockville.....	Lib.
Lincoln.....	126,674	70,159	55,846	25,902	J. C. MCNULTY.....	St. Catharines.....	Lib.
London.....	73,970	44,283	34,229	15,700	C. E. IRVINE.....	Lambeth.....	P.C.
Middlesex East.....	101,721	57,153	44,599	19,850	C. E. MILLAR.....	London.....	P.C.
Middlesex West.....	45,731	25,585	21,299	10,247	W. H. A. THOMAS.....	Strathroy.....	P.C.
Niagara Falls.....	78,010	42,688	31,480	18,749	Hon. JUDY V. LAMARSH	Ottawa.....	Lib.
Nickel Belt.....	76,307	35,277	29,905	13,414	O.-J. GODIN.....	Sudbury.....	Lib.
Nipissing.....	68,173	34,851	27,984	16,547	Hon. J. R. GARLAND ¹	Ottawa.....	Lib.
Norfolk.....	50,475	27,464	22,973	10,862	J. M. ROXBURGH.....	Simcoe.....	Lib.
Northumberland.....	42,768	24,226	21,376	10,343	PAULINE JEWETT.....	Brighton.....	Lib.
Ontario.....	125,784	70,303	58,602	22,902	Hon. M. STARR.....	Oshawa.....	P.C.
Ottawa East.....	51,828	31,132	25,591	12,043	J. T. RICHARD.....	Ottawa.....	Lib.
Ottawa West.....	67,131	38,934	31,169	18,634	Hon. G. J. McLRATH.....	Ottawa.....	Lib.
Oxford.....	70,499	38,915	32,381	19,402	W. B. NESBITT.....	Woodstock.....	P.C.
Parry Sound-Muskoka.....	55,898	31,710	26,109	12,132	G. H. AIKEN.....	Gravenhurst.....	P.C.
Peel.....	111,575	65,035	53,517	28,009	B. S. BEER.....	Brampton.....	Lib.
Perth.....	55,816	32,760	27,028	15,328	Hon. J. W. MONTEITH.....	Stratford.....	P.C.
Peterborough.....	67,969	38,434	33,334	11,909	F. F. STENSON.....	Peterborough.....	P.C.
Port Arthur.....	87,977	43,314	35,828	16,141	D. M. FISHER.....	Ottawa.....	N.D.P.
Prince Edward-Lennox.....	37,758	21,051	17,532	8,869	A. D. ALKENBRACK.....	Napanee.....	P.C.
Renfrew North.....	55,616	26,368	23,478	11,580	J. M. FORGIE.....	Pembroke.....	Lib.
Renfrew South.....	35,929	19,760	17,774	8,765	J. J. GREENE.....	Amnrior.....	Lib.
Russell.....	124,368	62,929	52,664	31,182	P. TARDIF.....	Ottawa.....	Lib.
Simcoe East.....	58,773	30,591	25,236	12,662	P. B. RYNARD.....	Orillia.....	P.C.
Simcoe North.....	46,377	26,764	22,301	10,157	H. E. SMITH.....	Barrie.....	P.C.
Stornont.....	57,867	30,739	24,869	13,285	L. LAMOURREUX.....	Cornwall.....	Lib.
Sudbury.....	73,945	38,808	32,632	15,794	D. R. MITCHELL.....	Sudbury.....	Lib.
Timiskaming.....	50,654	26,290	21,800	7,356	A. PETERS.....	New Liskeard.....	N.D.P.
Timmins.....	48,956	25,067	19,967	8,452	M. W. MARTIN.....	Timmins.....	N.D.P.
Victoria.....	48,789	28,798	23,223	10,538	C. LAMB.....	Lindsay.....	P.C.
Waterloo North.....	115,579	66,651	51,036	22,007	O. W. WEICHEL.....	Elmira.....	P.C.
Waterloo South.....	61,175	34,875	28,270	11,479	G. CHAPLIN ²	Galt.....	P.C.
Welland.....	86,731	47,181	36,408	19,879	W. H. McMILLAN.....	Thorold.....	Lib.
Wellington-Huron.....	32,638	18,440	15,419	8,391	W. M. HOWE.....	Arthur.....	P.C.
Wellington South.....	59,150	33,436	28,822	11,350	A. D. HALES.....	Guelph.....	Lib.
Wentworth.....	99,940	54,814	44,612	18,589	J. B. MORISON.....	Hamilton.....	Lib.
York Centre.....	190,405	106,741	83,394	41,485	J. E. WALKER.....	Downsview.....	Lib.
York East.....	89,709	59,809	47,660	21,038	S. OTTO.....	Toronto.....	Lib.
York-Humber.....	90,618	55,860	44,552	20,188	R. B. COWAN.....	Toronto.....	Lib.
York North.....	100,874	56,201	45,382	21,668	J. H. HADDISON.....	King.....	Lib.
York-Scarborough.....	267,252	162,950	133,145	63,049	M. J. MOREAU.....	Scarborough.....	Lib.
York South.....	114,867	62,892	48,520	21,042	M. GELBER.....	Toronto.....	Lib.
York West.....	162,604	98,473	81,136	41,480	L. P. KELLY.....	Toronto.....	Lib.
City of Toronto—							
Broadview.....	56,982	29,775	21,605	8,743	D. G. HAHN.....	Toronto.....	Lib.
Danforth.....	88,988	52,116	41,019	14,903	R. SCOTT.....	Scarborough.....	N.D.P.
Davenport.....	64,520	26,604	20,366	11,023	Hon. W. L. GORDON.....	Ottawa.....	Lib.
Eglinton.....	70,470	49,709	41,694	22,215	Hon. M. SHARP.....	Ottawa.....	Lib.
Greenwood.....	58,548	31,243	24,305	9,421	F. A. BREWIN.....	Toronto.....	N.D.P.
High Park.....	60,630	32,232	25,429	13,034	A. J. P. CAMERON.....	Toronto.....	Lib.
Parkdale.....	59,145	34,078	25,052	12,694	S. HADDASZ.....	Toronto.....	Lib.
Rosedale.....	56,115	31,442	23,711	12,860	D. S. MACDONALD.....	Toronto.....	Lib.
St. Paul's.....	53,155	38,323	28,296	15,891	I. G. WAHN.....	Toronto.....	Lib.
Spadina.....	83,424	37,793	27,592	14,850	S. P. RYAN.....	Toronto.....	Lib.
Trinity.....	64,902	26,533	19,940	10,595	Hon. P. T. HELLYER.....	Ottawa.....	Lib.
Manitoba—							
(14 members)							
Brandon-Souris.....	65,036	37,337	30,067	18,100	Hon. W. G. DINSDALE.....	Brandon.....	P.C.
Churchill.....	54,952	29,478	22,099	11,707	R. SIMPSON.....	Flin Flon.....	P.C.
Dauphin.....	40,179	22,854	17,646	7,541	R. E. FORRES.....	Dauphin.....	P.C.
Lisgar.....	46,397	25,173	19,468	9,698	G. R. MUIR.....	Roland.....	P.C.

¹ Died Mar. 14, 1964; see Table 11 for by-election.

² Died June 27, 1964; see Table 11 for by-election.

10.—Electoral Districts, Voters on List and Votes Polled, Names and Addresses of Members of the House of Commons as Elected at the Twenty-sixth General Election, Apr. 8, 1963 and Revised to Apr. 30, 1965—continued.

Province and Electoral District	Population, Census 1961	Voters on List	Total Votes Polled	Votes Polled by Member	Name of Member	P.O. Address	Party Affiliation
No.	No.	No.	No.	No.			
Manitoba—concluded							
Marquette.....	47,865	25,254	21,549	11,729	J. N. MANDZIUK.....	Oakburn.....	P.C.
Portage-Neepawa.....	57,958	31,913	24,892	12,532	S. J. ENNS.....	Portage la Prairie.....	P.C.
Provencher.....	40,314	20,925	14,671	6,729	W. H. JORGENSEN.....	Morris.....	P.C.
St. Boniface.....	76,524	42,395	33,479	13,547	Hon. R. J. TEILLET.....	St. Boniface.....	Lib.
Selkirk.....	50,320	26,999	20,043	10,096	E. STEFANSON.....	Gimli.....	P.C.
Springfield.....	48,343	26,331	20,198	9,552	J. B. SLOGAN.....	Selkirk.....	P.C.
Winnipeg North.....	116,266	65,992	51,106	18,512	D. ORLIKOW.....	Winnipeg.....	N.D.P.
Winnipeg North Centre.....	78,615	42,432	29,785	13,619	S. H. KNOWLES.....	Winnipeg.....	N.D.P.
Winnipeg South.....	113,629	68,016	56,463	24,467	MARGARET KONANTZ.....	Winnipeg.....	Lib.
Winnipeg South Centre.....	85,288	51,426	40,404	17,092	Hon. G. CHURCHILL.....	Winnipeg.....	P.C.
Saskatchewan—							
(17 members)							
Assiniboia.....	45,553	24,032	21,033	9,393	L. WATSON.....	Avonlea.....	P.C.
Humboldt-Melfort.....	48,243	25,779	21,304	12,010	R. R. RAPP.....	Spalding.....	P.C.
Kindersley.....	47,960	24,631	21,779	9,944	R. W. CANDELON.....	Unity.....	P.C.
Mackenzie.....	44,479	23,627	17,617	10,010	S. J. KORCHINSKI.....	Rama.....	P.C.
Meadow Lake.....	37,937	18,344	13,927	7,819	A. C. CADIEU.....	Spiritwood.....	P.C.
Melville.....	40,255	22,815	19,497	9,412	J. N. ORNISTON.....	Cupar.....	P.C.
Moose Jaw-Lake Centre.....	81,960	45,927	38,454	20,958	E. PASCOE.....	Moose Jaw.....	P.C.
Moose Mountain.....	44,404	23,313	20,122	9,949	R. R. SOUTHAM.....	Gainsborough.....	P.C.
Prince Albert.....	58,493	31,782	25,066	17,824	Rt. Hon. J. G. DIEFFENBAKER*.....	Ottawa, Ont.....	P.C.
Qu'Appelle.....	39,362	21,138	17,829	10,690	Hon. A. HAMILTON.....	Manotick, Ont.....	P.C.
Regina City.....	89,293	50,600	42,662	19,605	K. H. MORE.....	Regina.....	P.C.
Rosetown-Biggar.....	47,208	25,237	21,717	11,984	C. O. COOPER.....	Hawarden.....	P.C.
Rosthern.....	46,954	23,657	18,895	11,351	E. NASSERDEN.....	Saskatoon.....	P.C.
Saskatoon.....	95,575	58,154	49,469	26,237	H. F. JONES ¹	Saskatoon.....	P.C.
Swift Current-Maple Creek.....	56,528	31,230	26,512	12,963	J. MCINTOSH.....	Swift Current.....	P.C.
The Battlefords.....	51,613	26,725	20,890	12,108	A. R. HORNER.....	Blaine Lake.....	P.C.
Yorkton.....	49,364	28,560	23,200	12,443	G. D. CLANCY.....	Yorkton.....	P.C.
Alberta—							
(17 members)							
Acadia.....	47,724	24,356	20,539	10,616	J. H. HORNER.....	Pollockville.....	P.C.
Athabasca.....	59,184	28,223	22,237	12,074	F. J. BIGG.....	Westlock.....	P.C.
Battle River-Camrose.....	58,655	31,255	25,639	15,565	C. S. SMALLWOOD.....	Irma.....	P.C.
Bow River.....	62,806	31,912	25,112	11,461	E. M. WOOLLIAMS.....	Calgary.....	P.C.
Calgary North.....	134,783	72,693	57,038	21,966	Hon. D. S. HARKNESS.....	Calgary.....	P.C.
Calgary South.....	124,248	69,807	54,174	21,619	Hon. H. W. HAYS.....	Ottawa, Ont.....	Lib.
Edmonton East.....	124,248	66,289	53,646	18,880	W. SKOREYKO.....	Edmonton.....	P.C.
Edmonton-Strathcona.....	121,124	66,289	53,646	18,880	T. J. NUYENT.....	Ottawa, Ont.....	P.C.
Edmonton West.....	150,257	79,781	63,204	26,578	Hon. M. LAMBERT.....	Ottawa, Ont.....	P.C.
Jasper-Edson.....	70,088	35,923	26,405	14,776	H. M. HORNER.....	Barrhead.....	P.C.
Lehighbridge.....	69,175	32,878	26,447	11,475	D. R. GUNDLOCK.....	Warner.....	P.C.
Macleod.....	50,966	25,928	21,674	9,785	L. E. KINDT.....	Nanton.....	P.C.
Medicine Hat.....	63,450	32,796	27,043	11,080	H. A. OLSON.....	Medicine Hat.....	P.C.
Peace River.....	75,811	39,275	27,666	16,111	G. W. BALDWIN.....	Peace River.....	S.C.
Red Deer.....	63,205	33,530	27,194	12,182	R. N. THOMPSON*.....	Red Deer.....	S.C.
Vegreville.....	42,798	23,416	19,139	12,859	F. J. W. FANE.....	Vegreville.....	P.C.
Wetaskiwin.....	55,424	28,435	21,973	11,601	H. A. MOORE.....	Wetaskiwin.....	P.C.
British Columbia—							
(22 members)							
Burnaby-Coquitlam.....	90,941	49,944	41,289	19,067	T. C. DOUGLAS*.....	Ottawa, Ont.....	N.D.P.
Burnaby-Richmond.....	96,835	52,520	43,758	16,578	R. W. FRITTE.....	Burnaby.....	N.D.P.
Cariboo.....	82,173	43,073	30,805	9,335	B. R. LEOBE.....	Prince George.....	S.C.
Coast-Capilano.....	113,734	65,669	54,155	27,177	J. DAVIS.....	West Vancouver.....	Lib.
Comox-Alberni.....	71,886	39,303	31,399	13,449	T. S. BARNETT.....	Alberni.....	N.D.P.
Esquimalt-Saanich.....	74,979	41,514	36,965	13,772	G. L. CHATTERTON.....	Itroy Oak.....	P.C.
Fraser Valley.....	88,518	45,929	38,444	11,500	A. B. PATTERSON.....	Abbotsford.....	S.C.
Kamloops.....	73,446	37,988	29,433	8,004	C. J. M. WILLOUGHBY.....	Kamloops.....	P.C.
Kootenay East.....	41,449	22,164	18,438	6,165	J. A. BYRNE.....	Kimberley.....	Lib.
Kootenay West.....	57,136	29,939	23,046	8,595	H. W. HERRIDGE.....	Nakusp.....	N.D.P.

¹ Died Mar. 4, 1964; see Table 11 for by-election.

10.—Electoral Districts, Voters on List and Votes Polled, Names and Addresses of Members of the House of Commons as Elected at the Twenty-sixth General Election, Apr. 8, 1963 and Revised to Apr. 30, 1965—concluded.

Province or Territory and Electoral District	Population, Census 1961	Voters on List	Total Votes Polled	Votes Polled by Member	Name of Member	P.O. Address	Party Affiliation
	No.	No.	No.	No.			
British Columbia—concluded							
Nanaimo-Cowichan—The Islands.....	59,786	34,517	27,969	12,280	C. CAMERON.....	Lantzville.....	N.D.P.
New Westminster.....	142,803	79,027	64,220	23,609	B. MATHER.....	Ladner.....	N.D.P.
Okanagan Boundary.....	66,180	37,010	30,495	10,031	D. V. PUGH.....	Oliver.....	P.C.
Okanagan-Revelstoke.....	36,009	19,545	16,572	5,800	S. A. FLEMING.....	Vernon.....	P.C.
Skeena.....	58,740	26,572	20,382	10,743	F. HOWARD.....	Kitimat.....	N.D.P.
Vancouver-Burrard.....	60,347	41,081	32,204	12,048	S. R. BASFORD.....	Vancouver.....	Lib.
Vancouver Centre.....	44,920	34,541	24,359	9,472	Hon. J. R. NICHOLSON.....	Ottawa, Ont.....	Lib.
Vancouver East.....	59,496	31,920	23,594	12,688	H. E. WINCH.....	Vancouver.....	N.D.P.
Vancouver-Kingsway.....	67,228	37,858	29,772	13,966	A. A. WEBSTER.....	Vancouver.....	N.D.P.
Vancouver-Quadra.....	69,981	43,299	36,495	15,160	G. DEACHMAN.....	Vancouver.....	Lib.
Vancouver South.....	86,069	51,538	42,661	19,140	Hon. A. LAING.....	Ottawa, Ont.....	Lib.
Victoria.....	86,426	53,123	43,771	15,040	D. W. GROOS.....	Victoria.....	Lib.
Yukon Territory—(1 member)							
Yukon.....	14,628	6,878	6,051	2,969	E. NIELSEN.....	Whitehorse.....	P.C.
Northwest Territories—(1 member)							
Northwest Territories.....	14,895	11,856	8,663	4,814	G. RHÉAUME.....	Yellowknife.....	P.C.

11.—By-elections from the Date of the Twenty-sixth General Election, Apr. 8, 1963 to Apr. 30, 1965¹

Electoral District and Province	Date of By-election	Voters on List	Candidates	Votes Polled	Name of New Member	P.O. Address	Party Affiliation
		No.	No.	No.			
Montreal-Laurier, Que.....	Feb. 10, 1964	25,989	5	10,518	FERNAND-E. LEBLANC..	Montreal.....	Lib.
Montreal-Saint-Denis, Que.....	Feb. 10, 1964	35,500	6	15,656	MARCEL PRUD'HOMME..	Montreal.....	Lib.
Nipissing, Ont.....	June 22, 1964	35,597	3	26,297	CARL LEGAULT.....	Sturgeon Falls.....	Lib.
Saskatoon, Sask.....	June 22, 1964	57,434	3	40,299	ELOISE JONES.....	Saskatoon.....	P.C.
Waterloo South, Ont.....	Nov. 9, 1964	36,055	3	28,216	MAX SALTSMAN.....	Galt.....	N.D.P.
Westmorland, N.B.....	Nov. 9, 1964	48,862	3	37,298	MARGARET RIDEOUT...	Moncton.....	Lib.

¹ By-elections held between Apr. 30, 1965 and the date of going to press will be carried in an Appendix to this volume.

Indemnities and Allowances.—Members of the Senate and House of Commons receive a sessional allowance at the rate of \$12,000 per annum. In addition, for each session of Parliament, they may be paid travelling expenses between their place of residence or constituency and Ottawa as may be required for the performance of their duties as members of the Senate and House of Commons. Senators receive an annual expense allowance of \$3,000 and members of Parliament receive an expense allowance of \$6,000, neither of which is subject to income tax, and is payable quarterly. The member of the Senate occupying the recognized position as Leader of the Government in the Senate is paid, in addition to his sessional allowance, an annual allowance of \$10,000 and to the member of the Senate occupying the recognized position as Opposition Leader in the Senate there is paid, in addition to his sessional allowance, an annual allowance of \$6,000; but if the Leader of

the Government is in receipt of a salary under the Salaries Act the annual allowance is not paid. The remuneration of the Prime Minister is \$25,000 a year and of a Cabinet Minister and the Leader of the Opposition in the House of Commons \$15,000 a year in addition to the sessional and expense allowances each receives as a member of Parliament. The remuneration of a Minister without Portfolio is \$7,500 a year in addition to the sessional and expense allowances, the latter being not taxable. Additional annual allowances of \$4,000 (beyond the above-noted sessional allowance) are provided to each Leader of a Party having a recognized membership of twelve or more persons in the House of Commons other than the Prime Minister and the member occupying the recognized position as Leader of the Opposition in the House of Commons and, likewise, to the Chief Government Whip and to the Chief Opposition Whip in the House of Commons. The Speaker of the Senate and the Speaker of the House of Commons each receives, besides the sessional allowance and expense allowance, a salary of \$9,000 per annum. The Deputy Speaker of the House of Commons receives a salary of \$6,000 per annum. The Speakers of the Senate and the House of Commons are also entitled to \$3,000 in lieu of residence and the Deputy Speaker of the House of Commons an allowance of \$1,500 in lieu of residence; these allowances are not taxable. The Deputy Chairman of Committees receives an annual allowance of \$4,000. Parliamentary Secretaries to the Ministers of the Crown receive an annual allowance of \$4,000 a year, in addition to their sessional and expense allowances. A motor vehicle allowance of \$2,000 is paid to each Minister of the Crown and to the recognized Leader of the Opposition in the House of Commons, and a motor vehicle allowance of \$1,000 is paid to the Speakers of the Senate and of the House of Commons; these allowances are not taxable.

A member of Parliament contributes, by reservation, 6 p.c. of his full sessional indemnity toward his retirement allowance, which is based on five twelfths of the total contributions, paid or elected to be paid; to the widow of an ex-member is paid three fifths of the allowance paid or payable to the ex-member at the time of his death. The maximum allowance payable to an ex-member is \$9,000 per annum and the maximum payable to the widow of an ex-member is \$5,400 per annum.

An Act to make provision for the retirement of members of the Senate (SC 1965, c. 4) entitles a Senator appointed after June 2, 1965 to become a contributor under the provisions of the Members of Parliament Retiring Act. Senators appointed prior to that date and who have not attained the age of 75 years, who elect under the provisions of this Act, are also entitled to become contributors. Under the provisions of the Retirement Act, a Senator contributes, by reservation, 6 p.c. of his sessional indemnity to the Consolidated Revenue Fund. A Senator appointed before June 2, 1965 who (a) within one year of attaining the age of 75 years resigns his place in the Senate or (b) resigns due to some permanent infirmity disabling him from performing his duties in the Senate, may be granted an annuity equal to two thirds of his sessional indemnity for life. The widow of a person granted such an annuity may receive an annuity equal to one third of the annuity to the ex-member of the Senate.

Every former Prime Minister who held office for four years will receive from the Consolidated Revenue Fund an allowance of two thirds of the annual salary provided for Prime Ministers under the Salaries Act, the allowance to commence when the former Prime Minister ceases to hold office, or attains the age of 70 years, whichever is the later, and to continue during his lifetime. The widow of a Prime Minister will receive an annual payment of one third of the allowance that was being paid or that would have been paid to her husband, where he dies without receiving the allowance, such allowance to commence immediately after the death of her husband and to continue during her natural life or until her remarriage. None of these allowances is payable while the recipient is a Senator or a member of the House of Commons.

The Federal Franchise.—The present federal franchise laws are contained in the Canada Elections Act (SC 1960, c. 39). The franchise is conferred upon all Canadian citizens or British subjects, men and women, who have attained the age of 21 years, are ordinarily resident in the electoral district on the date of the issue of the writ ordering an election and, in the case of British subjects other than Canadian citizens, have been ordinarily resident in Canada for twelve months prior to polling day at such election. Persons denied the right to vote are:—

- (1) the Chief Electoral Officer and the Assistant Chief Electoral Officer;
- (2) judges appointed by the Governor General in Council;
- (3) the returning officer for each electoral district;
- (4) persons undergoing punishment as inmates of any penal institution for the commission of any offence;
- (5) persons restrained of their liberty or deprived of the management of their property by reason of mental disease; and
- (6) persons disqualified under any law relating to the disqualification of electors for corrupt and illegal practices.

Prior to July 1, 1960, the list of persons denied the right to vote included "Indians ordinarily resident on an Indian reserve who were not members of His Majesty's Forces in World Wars I or II or who did not execute a waiver of exemption under the Indian Act from taxation on and in respect of personal property". Legislation proclaimed on the above-mentioned date confers upon all Indians who have attained the age of 21 years the right to vote at federal elections, without taking from them any of the rights and privileges to which they are entitled under the Indian Act. The Eskimos who are Canadian citizens possess the right to vote in federal elections, and the assumption of that right in the far-flung communities of the Canadian Far North has grown with Government establishment of electoral districts and polling facilities.

The Canadian Forces Voting Rules set out in Schedule II to the Canada Elections Act prescribe voting procedure for members of the Armed Forces of Canada and also for veterans in receipt of treatment or domiciliary care in certain institutions.

12.—Voters on the Lists and Votes Polled at the Federal General Elections of 1958, 1962 and 1963

NOTE.—Corresponding statistics for the General Elections of 1911, 1917, 1921 and 1925 are given in the 1926 Year Book, p. 82; those for 1926 in the 1945 edition, p. 66; those for 1930 and 1935 in the 1948-49 edition, p. 94; those for 1940 in the 1956 edition, p. 81; those for 1945 in the 1957-58 edition, p. 57; and those for 1949, 1953 and 1957 in the 1962 edition, p. 71.

Province or Territory	Voters on the Lists			Votes Polled		
	1958	1962	1963	1958	1962	1963
	No.	No.	No.	No.	No.	No.
Newfoundland	204,778	215,565	221,321	160,928	155,263	152,175
Prince Edward Island	54,200	56,542	57,029	69,302 ¹	73,509 ¹	69,486 ¹
Nova Scotia	390,196	398,161	401,874	418,479 ²	423,556 ²	419,352 ²
New Brunswick	294,387	302,313	304,732	249,706	252,053	245,557
Quebec	2,576,682	2,728,191	2,807,634	2,045,199	2,117,644	2,143,246
Ontario	3,189,422	3,397,647	3,455,363	2,534,555	2,719,020	2,799,870
Manitoba	481,552	508,920	516,525	385,648	393,023	401,870
Saskatchewan	484,139	502,495	505,551	399,949	426,426	419,973
Alberta	608,820	680,253	700,920	452,977	505,752	552,164
British Columbia	830,237	891,686	921,074	629,982	691,930	740,229
Yukon Territory ³	6,071	6,762	6,878	5,469	5,978	6,051
Northwest Territories ⁴	6,716	11,790	11,856	4,945	8,502	8,663
Totals	9,131,200	9,700,325	9,910,757	7,357,139	7,772,656	7,958,636

¹ Each voter in the double-member constituency of Queens County, P.E.I., had two votes; in 1963, 26,472 voters on the list cast 42,703 votes.

² Each voter in the double-member constituency of Halifax, N.S., had two votes; in 1963, 122,846 voters on the list cast 183,402 votes.

³ Electoral District of Yukon.

⁴ Electoral District of Mackenzie River in 1958 and 1962 and Electoral District of Northwest Territories in 1963.

Subsection 3.—The Judiciary

The Federal Judiciary

The Parliament of Canada is empowered by Sect. 101 of the British North America Act from time to time to provide for the constitution, maintenance and organization of a general Court of Appeal for Canada and for the establishment of any additional courts for the better administration of the laws of Canada. Under this provision, Parliament has established the Supreme Court of Canada, the Exchequer Court of Canada and certain miscellaneous courts.

Supreme Court of Canada.—This Court, first established in 1875 and now governed by the Supreme Court Act (RSC 1952, c. 259), consists of a chief justice, who is called the Chief Justice of Canada, and eight puisne judges. The chief justice and the puisne judges are appointed by the Governor in Council and they hold office during good behaviour but are removable by the Governor General on address of the Senate and the House of Commons. They cease to hold office upon attaining the age of 75 years. The Court sits at Ottawa and exercises general appellate jurisdiction throughout Canada in civil and criminal cases. The Court is also required to consider and advise upon questions referred to it by the Governor in Council and it may also advise the Senate or the House of Commons on private Bills referred to the Court under any rules or orders of the Senate or of the House of Commons.

Appeals may be brought from any final judgment of the highest court of final resort in a province in any case where the amount or value of the matter in controversy exceeds the sum of \$10,000. An appeal may be brought from any other final judgment with leave of the highest court of final resort in the province; if such court refuses to grant leave, the Supreme Court of Canada may grant leave to appeal. The Supreme Court may grant leave to appeal from any judgment whether final or not. Appeals in respect of indictable offences are regulated by the Criminal Code. Appeals from federal courts are regulated by the statute establishing such courts. The judgment of the Supreme Court of Canada in all cases is final and conclusive.

13.—Chief Justice and Judges of the Supreme Court of Canada, as at Apr. 30, 1965

(In order of seniority)

Name	Date of Appointment
Hon. Chief Justice ROBERT TASCHEREAU.....	Apr. 22, 1963 ¹
Hon. Justice JOHN R. CARTWRIGHT.....	Dec. 23, 1949
Hon. Justice J. H. GERALD FAUTEUX.....	Dec. 23, 1949
Hon. Justice DOUGLAS CHARLES ABBOTT.....	July 1, 1954
Hon. Justice RONALD MARTLAND.....	Jan. 15, 1958
Hon. Justice WILFRED JUDSON.....	Feb. 5, 1958
Hon. Justice ROLAND A. RITCHIE.....	May 5, 1959
Hon. Justice EMMETT M. HALL.....	Nov. 23, 1962
Hon. Justice WISHART FLETT SPENCE.....	May 30, 1963

¹ First appointed a Judge of the Supreme Court, Feb. 9, 1940.

Exchequer Court of Canada.—The Exchequer Court was first established in 1875 as part of the Supreme Court of Canada but is now a separate court governed by the Exchequer Court Act (RSC 1952, c. 98). The Court consists of a president and six puisne judges who are appointed by the Governor in Council. The president and the puisne judges

hold office during good behaviour but may be removed by the Governor General on address of the Senate and the House of Commons. They cease to hold office upon attaining the age of 75 years. The Court sits at Ottawa and also at any other place in Canada where sittings may be fixed by the Court. The jurisdiction of the Court extends to cases where claims are made by or against the Crown in right of Canada. Proceedings against the Crown are taken by petition of right pursuant to the Petition of Right Act (RSC 1952, c. 210).

An appeal lies to the Supreme Court of Canada from any final judgment of the Exchequer Court in which the amount in controversy exceeds \$500; an appeal also lies with leave of the Supreme Court in certain cases where the amount in controversy does not exceed \$500 or where the judgment is not final.

The Exchequer Court also exercises admiralty jurisdiction in Canada. This was first conferred in 1891 by the Admiralty Act (SC 1891, c. 29) and is now governed by the Admiralty Act (RSC 1952, c. 1). Under this statute, the Exchequer Court is continued as a Court of Admiralty. The president and puisne judges of the Exchequer Court exercise admiralty jurisdiction throughout the whole of Canada. In addition, Canada is divided into various admiralty districts; a district judge in admiralty is appointed for each district. Appeals to the Supreme Court of Canada from judgments of the president or the puisne judges are governed by the general appeal provisions in the Exchequer Court Act. Appeals may be taken from a final judgment of a district judge in admiralty either to the Exchequer Court or direct to the Supreme Court of Canada.

Miscellaneous Courts.—*Railway Act.*—The Railway Act, 1903 (RSC 1952, c. 234) established the Board of Railway Commissioners for Canada as a court of record; by the Transport Act, 1938 (RSC 1952, c. 271) the name was changed to the Board of Transport Commissioners for Canada. This court exercises jurisdiction with respect to railway matters. The Governor in Council is given jurisdiction to vary any order of the Board and an appeal lies from the Board to the Supreme Court of Canada upon a question of jurisdiction or a question of law.

Bankruptcy Act.—By virtue of Sect. 91(21) of the British North America Act, 1867, Parliament has exclusive legislative jurisdiction in relation to bankruptcy and insolvency. By the Bankruptcy Act (RSC 1952, c. 14) the superior courts of the provinces are constituted bankruptcy courts; original jurisdiction is conferred upon the trial courts and appellate jurisdiction is conferred upon the appeal courts of the provinces.

Income Tax Act and Estate Tax Act.—By the Income Tax Act (RSC 1952, c. 148) the Tax Appeal Board is established consisting of a chairman and not fewer than two or more than four members with jurisdiction over appeals against income tax assessments. A further appeal may be taken to the Exchequer Court. Under the Estate Tax Act (SC 1958, c. 29) the Tax Appeal Board also has jurisdiction to hear appeals from assessments under that Act.

National Defence Act.—The Court Martial Appeal Court was established in 1959 by an amendment to the National Defence Act (SC 1959, c. 5). The judges of the Court are not fewer than four judges of the Exchequer Court of Canada designated by the Governor in Council and such additional judges of a superior court of criminal jurisdiction as are appointed by the Governor in Council. The Governor in Council designates one of the judges to be President of the Court. The Court hears appeals from courts martial respecting the legality of a finding of guilty on any charge and the legality of a sentence passed by a court martial. An appeal lies from the Court Martial Appeal Court to the Supreme Court of Canada on a question of law only.

Provincial and Territorial Judiciaries*

Certain provisions of the British North America Act govern to some extent the provincial judiciaries. Under Sect. 92 (14) the legislature of each province exclusively may make laws in relation to the administration of justice in the province including the constitution, maintenance and organization of provincial courts both of civil and of criminal jurisdiction. Sect. 96 provides that the Governor General shall appoint the judges of the superior, district and county courts in each province, except those of the courts of probate in Nova Scotia and New Brunswick. Sect. 100 provides that the salaries, allowances and pensions of judges of the superior, district and county courts (except the courts of probate in Nova Scotia and New Brunswick) are to be fixed and provided by the Parliament of Canada and these are set out in the Judges Act (RSC 1952, c. 159 and amendments). Under Sect. 99, the judges of the superior courts hold office during good behaviour but are removable by the Governor General on address of the Senate and the House of Commons. They cease to hold office upon attaining the age of 75 years. The tenure of office of district and county court judges is fixed by the Judges Act as being during good behaviour and their residence within the area for which the court is established.

All provinces have minor courts with limited civil and criminal jurisdiction, the judges of which are appointed by provincial authority as, for example, justices of the peace, magistrates and juvenile court judges. Except in Quebec, there are county or district courts of each province with limited jurisdiction varying from \$500 to \$2,500 in amount. Each province has a superior court with virtually unlimited jurisdiction variously known as Court of Queen's Bench, Supreme Court, Superior Court, etc. There is also a Court of Appeal in each province.

The Yukon Act and the Northwest Territories Act each provide for a superior court of record in and for the Territory, called the Territorial Court, and consisting of one or more judges appointed by the Governor in Council. The judges of the Territorial Court of the Yukon Territory are *ex officio* judges of the Territorial Court of the Northwest Territories and vice versa. In 1960 the two Acts were amended to provide for a Court of Appeal in each of the Territories. Police magistrates and justices of the peace have jurisdiction in minor civil and criminal cases.

Section 2.—Provincial and Territorial Governments†

In each of the provinces, The Queen is represented by a Lieutenant-Governor appointed by the Governor General in Council. The Lieutenant-Governor acts on the advice and with the assistance of his Ministry or Executive Council which is responsible to the Legislature and resigns office under circumstances similar to those described on p. 79 concerning the Federal Government.

The Legislature of each province is unicameral, consisting of the Lieutenant-Governor and a Legislative Assembly, except for the Province of Quebec where there is a Legislative Council as well as a Legislative Assembly. The Legislative Assembly is elected by the people for a statutory term of five years but may be dissolved within that period by the Lieutenant-Governor on the advice of the Premier of the province.

The source of legislative authority of the Provincial Legislatures is the British North America Act, 1867 (Br. Stat. 1867, c. 3 and amendments). Under Sect. 92 of the Act, the Legislature of each province exclusively may make laws in relation to the following

* More detailed information concerning provincial judiciaries is given in the 1954 Year Book, pp. 48-55.

† The information given in Subsections 1 and 3 to 10 of this Section is brought up to Apr. 30, 1965; Subsection 2 is as at June 15, 1965, the date of a major Cabinet change in Prince Edward Island. Any important changes occurring between those dates and the time of going to press will be found in an Appendix to this volume.

matters: amendment of the constitution of the province except as regards the Lieutenant-Governor; direct taxation within the province; borrowing of money on the credit of the province; establishment and tenure of provincial offices and appointment and payment of provincial officers; the management and sale of public lands belonging to the province and of the timber and wood thereon; the establishment, maintenance and management of public and reformatory prisons in and for the province; the establishment, maintenance and management of hospitals, asylums, charities and eleemosynary institutions in and for the province, other than marine hospitals; municipal institutions in the province; shop, saloon, tavern, auctioneer and other licences issued for the raising of provincial or municipal revenue; local works and undertakings other than interprovincial or international lines of ships, railways, canals, telegraphs, etc., or works which, though wholly situated within one province, are declared by the Federal Parliament to be for the general advantage either of Canada or of two or more provinces; the incorporation of companies with provincial objects; the solemnization of marriage in the province; property and civil rights in the province; the administration of justice in the province including the constitution, maintenance and organization of provincial courts both of civil and of criminal jurisdiction including procedure in civil matters in these courts; the imposition of punishment by fine, penalty or imprisonment for enforcing any law of the province relating to any of the aforesaid subjects; generally all matters of a merely local or private nature in the province.

Further, in and for each province the Legislature exclusively may, under Sect. 93, make laws in relation to education subject to certain restrictions relating to the establishment of schools by religious minorities. These powers with similar restrictions were conferred on the more recently admitted provinces on their inclusion in the federation.

The Provincial Legislatures may also make laws under Sect. 95 in relation to agriculture and immigration, subject to any laws of the Parliament of Canada in relation to these subjects.

Provincial Franchise.—Details regarding qualifications and disqualifications of the franchise are contained in the Elections Act of each province. In general, every person, male or female, at a specified age (18 to 21 years) who is a Canadian citizen or other British subject, who complies with certain residence requirements in the province and the electoral district of polling and who falls under no statutory disqualifications, is entitled to vote. Voting privileges are given to persons in Quebec and Saskatchewan at the age of 18, in Newfoundland,* Alberta and British Columbia at 19 years, and in the remaining provinces at 21 years.

Subsection 1.—Newfoundland

The Government of Newfoundland consists of a Lieutenant-Governor, an Executive Council and a Legislative Assembly. The Legislative Assembly has 42 members elected for a term of five years. The Legislature elected Nov. 19, 1962 is the 33rd in the history of Newfoundland and the 5th since Confederation.

Since the date of Confederation, Mar. 31, 1949, the province has had four Lieutenant-Governors: the Hon. Sir Albert Joseph Walsh commissioned Apr. 1, 1949; the Hon. Lt.-Col. Sir Leonard Outerbridge commissioned Sept. 5, 1949; the Hon. Campbell Macpherson commissioned Dec. 16, 1957; and the Hon. Fabian O'Dea commissioned Mar. 1, 1963. The first Ministry, formed on July 13, 1949 under the leadership of the Hon. Joseph R. Smallwood, was still in office on Apr. 30, 1965.

The Premier receives a salary of \$10,000 and the other Cabinet Ministers \$9,000 per annum, plus a sessional indemnity of \$3,833.33 and a travelling and expense allowance of \$2,666.66. Each member of the House of Assembly receives a sessional indemnity of \$3,833.33 plus a travelling and expense allowance of \$2,666.66. An additional allowance of \$3,000 is made to the Leader of the Opposition.

* Under the Newfoundland Act, 1964 (not yet proclaimed by May 1965).

14.—First Ministry of Newfoundland, as at Apr. 30, 1965

(Party standing at latest General Election, Nov. 19, 1962: 34 Liberal, 7 Progressive Conservative and 1 Independent.)

Office	Name	Date of First Appointment	Date of Present Appointment
Premier and Minister of Economic Development.....	Hon. J. R. SMALLWOOD.....	Apr. 1, 1949	Apr. 1, 1949
Attorney General.....	Hon. L. R. CURTIS.....	Apr. 1, 1949	Apr. 1, 1949
Minister of Mines, Agriculture and Resources.....	Hon. W. J. KEOUGH.....	July 29, 1949	May 1, 1957
Minister of Labour.....	Hon. C. H. BALLAM.....	Apr. 4, 1950	Apr. 4, 1950
Minister of Finance.....	Hon. F. W. ROWE.....	May 21, 1952	Dec. 7, 1964
Minister of Public Works.....	Hon. J. R. CHALKER.....	Apr. 4, 1950	May 1, 1957
Minister of Highways.....	Hon. E. S. JONES.....	Dec. 7, 1964	Dec. 7, 1964
Minister without Portfolio.....	Hon. P. J. LEWIS.....	Dec. 15, 1951	Dec. 15, 1951
Minister of Public Welfare and Solicitor General.....	Hon. M. P. MURRAY.....	Dec. 15, 1951	[Feb. 15, 1963 Apr. 10, 1955]
Minister of Provincial Affairs.....	Hon. G. A. FRECKER.....	Aug. 26, 1959	Dec. 7, 1964
Minister of Health.....	Hon. J. M. McGRATH.....	July 5, 1956	Aug. 7, 1956
Minister of Municipal Affairs and Supply.....	Hon. B. J. ABBOTT.....	May 1, 1957	May 1, 1957
Minister of Education.....	Hon. H. R. V. EARLE.....	Dec. 7, 1964	Dec. 7, 1964
Minister of Fisheries.....	Hon. C. M. LANE.....	June 12, 1961	Feb. 15, 1963

Subsection 2.—Prince Edward Island

The Government of Prince Edward Island consists of a Lieutenant-Governor, an Executive Council and a Legislative Assembly. Lieutenant-Governors from Confederation (1873) to 1959 are cited in the 1960 Year Book, p. 105; since that date, the position has been held by the Hon. F. W. Hyndman, appointed effective Mar. 31, 1958, followed by the Hon. W. J. MacDonald, appointed effective Aug. 1, 1963.

The General Assembly elected Dec. 10, 1962 is the 50th in the history of Prince Edward Island Legislatures and the 25th since Confederation. It has 30 members from 15 electoral districts who serve for a statutory term of five years. One half of the members of the Legislative Assembly are elected on a property vote. Each district elects one Councillor (elected on a property vote) and one Assembly member (elected on a general franchise vote). Premiers from Confederation to 1959 are listed in the 1960 Year Book, p. 105.

The annual salary of the Premier is \$8,000 and that of a Cabinet Minister \$5,000. Each member of the Assembly is paid \$2,000 for each session attended by him and an additional \$1,000 tax free as indemnity for expenses and travelling. The Speaker is paid an additional \$666.60 and a further additional \$333.40 tax free as indemnity for expenses and travelling. The Leader of the Opposition is paid an additional \$1,000 and a further additional \$500 tax free for expenses and travelling.

15.—Legislatures of Prince Edward Island, 1945-65, as at June 15, 1965

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 75; for 1924-35 in the 1935 edition, p. 110; and for 1936-43 in the 1963-64 edition, p. 82.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
Sept. 15, 1943	20th.....	4	Feb. 15, 1944	Oct. 27, 1947
Dec. 11, 1947	21st.....	5	Feb. 24, 1948	Mar. 30, 1951
Apr. 26, 1951	22nd.....	6	Oct. 23, 1951	Apr. 27, 1955
May 25, 1955	23rd.....	4	Feb. 2, 1956	Aug. 3, 1959
Sept. 1, 1959	24th.....	4	Mar. 1, 1960	Nov. 8, 1962
Dec. 10, 1962	25th.....	1	Mar. 14, 1963	1

¹ Life of Legislature not expired at June 15, 1965.

16.—Twenty-fourth Ministry of Prince Edward Island, as at June 15, 1965

(Party standing at latest General Election, Dec. 10, 1962: 19 Progressive Conservative and 11 Liberal.)

Office	Name	Date of First Appointment	Date of Present Appointment
Premier and President of the Executive Council.....	HON. WALTER R. SHAW.....	Sept. 16, 1959	Sept. 16, 1959
Minister of Public Works and Minister of Highways.....	HON. J. PHILIP MATHESON.....	Sept. 16, 1959	Jan. 3, 1963
Minister of Education and Provincial Secretary.....	HON. L. GEORGE DEWAR.....	Sept. 16, 1959	Jan. 3, 1963 June 15, 1965
Minister of Municipal Affairs and Minister of Fisheries.....	HON. LEO F. ROSSITER.....	Sept. 16, 1959	June 15, 1965 Jan. 3, 1963
Minister of Health.....	HON. HENRY W. WEDGE.....	Sept. 16, 1959	June 15, 1965
Provincial Treasurer, Attorney and Advocate General.....	HON. M. ALBAN FARMER.....	Jan. 3, 1963	Jan. 3, 1963
Minister of Natural Resources and Minister of Tourist Development.....	HON. LLOYD G. MACPHAIL.....	June 15, 1965	June 15, 1965
Minister of Welfare and of Labour.....	HON. HUBERT B. MACNEILL.....	Sept. 16, 1959	June 15, 1965
Minister of Agriculture.....	HON. ANDREW B. MACRAE.....	Sept. 16, 1960	Jan. 3, 1963

Subsection 3.—Nova Scotia

The Government of Nova Scotia consists of a Lieutenant-Governor, an Executive Council and a House of Assembly. Lieutenant-Governors from Confederation (1867) to 1959 are cited in the 1960 Year Book, p. 106; since that date the position has been held by Maj.-Gen. the Hon. E. C. Plow, commissioned to office Sept. 1, 1958, followed by the Hon. H. P. MacKeen, commissioned to office Mar. 1, 1963.

The Legislature has 43 members elected for a maximum term of five years. The Legislature elected Oct. 8, 1963 is the 48th in Nova Scotia's history and the 25th since Confederation. Premiers since Confederation are listed in the 1960 Year Book, p. 107.

The Premier of the province receives a salary of \$12,000 per annum and each Cabinet Minister a salary of \$10,000 per annum and \$800 per annum as expenses of representation. Each member of the House of Assembly receives a sessional indemnity of \$4,000 and an allowance of \$2,000 for expenses incidental to the discharge of his duties. The Leader of the Opposition receives an allowance of \$7,200 and \$800 representation allowance in addition to his sessional indemnity.

17.—Legislatures of Nova Scotia, 1945-65, as at Apr. 30, 1965

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 76; for 1924-33 in the 1938 edition, p. 111; and for 1939-44 in the 1963-64 edition, p. 83.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
Oct. 23, 1945	20th.....	4	Mar. 14, 1946	Apr. 27, 1949
June 9, 1949	21st.....	4	Mar. 21, 1950	Apr. 14, 1953
May 26, 1953	22nd.....	3	Feb. 24, 1954	Sept. 20, 1956
Oct. 30, 1956	23rd.....	3	Feb. 27, 1957	Apr. 26, 1960
June 7, 1960	24th.....	3	Feb. 8, 1961	Aug. 29, 1963
Oct. 8, 1963	25th.....	1	Feb. 6, 1964	1

¹ Life of Legislature not expired at Apr. 30, 1965.

18.—Seventeenth Ministry of Nova Scotia, as at Apr. 30, 1965

(Party standing at latest General Election, Oct. 8, 1963: 39 Progressive Conservative and 4 Liberal.)

Office	Name	Date of First Appointment	Date of Present Appointment
Premier and Minister of Education.....	Hon. R. L. STANFIELD.....	Nov. 20, 1956	Nov. 20, 1956
Minister of Finance and Economics and Chairman of the Nova Scotia Power Commission.....	Hon. G. I. SMITH.....	Nov. 20, 1956	{May 2, 1962 Nov. 20, 1956
Attorney General and Minister of Public Health.....	Hon. R. A. DONAHOE.....	Nov. 20, 1956	Nov. 20, 1956
Minister of Public Works and Minister of Highways.....	Hon. S. T. PYKE.....	Nov. 20, 1956	{Nov. 20, 1956 May 2, 1962
Minister of Lands and Forests and Minister of Fisheries.....	Hon. E. D. HALIBURTON.....	Nov. 20, 1956	{July 27, 1959 July 6, 1964
Minister of Labour.....	Hon. N. L. FERGUSON.....	Nov. 20, 1956	May 2, 1962
Minister of Trade and Industry and Minister under the Water Act.....	Hon. W. S. KENNEDY JONES.....	Apr. 21, 1960	{July 6, 1964 May 2, 1962
Minister without Portfolio.....	Hon. G. A. BURRIDGE.....	Oct. 13, 1960	Oct. 13, 1960
Minister of Mines and Minister in Charge of the Liquor Control Act.....	Hon. D. M. SMITH.....	Oct. 13, 1960	{Dec. 12, 1961 Oct. 13, 1960
Minister without Portfolio.....	Hon. D. R. MACLEOD.....	July 6, 1964	July 6, 1964
Minister of Public Welfare.....	Hon. J. M. HARDING.....	July 6, 1964	July 6, 1964
Minister of Municipal Affairs.....	Hon. T. J. McKEOUGH.....	July 6, 1964	July 6, 1964
Minister of Agriculture and Marketing.....	Hon. I. W. AKERLEY.....	July 6, 1964	July 6, 1964
Provincial Secretary and Minister in Charge of Civil Defence.....	Hon. G. J. DOUCET.....	July 6, 1964	July 6, 1964

Subsection 4.—New Brunswick

The Government of New Brunswick has a Lieutenant-Governor, an Executive Council and a House of Assembly. The Hon. J. Leonard O'Brien, Lieutenant-Governor at Apr. 30, 1964, was commissioned to office June 6, 1958. Lieutenant-Governors since Confederation (1867) are cited in the 1960 Year Book, p. 108.

The Legislature elected Apr. 22, 1963 is the 45th in New Brunswick's history and the 18th since Confederation. It has 52 members who are elected for a statutory term of five years. Premiers from Confederation to 1959 are listed in the 1960 Year Book, p. 108.

The Premier receives \$7,500 per annum in addition to the salary for any other portfolio he may hold. The salary of each Cabinet Minister is \$10,000 and the amount paid as indemnity to each member of the House of Assembly is \$3,400 plus an additional \$1,700 allowance for expenses. The Leader of the Opposition receives an additional \$6,000 and the Speaker receives an allowance of \$4,000 in addition to the regular indemnity.

19.—Legislatures of New Brunswick, 1945-65, as at Apr. 30, 1965

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 77; for 1924-35 in the 1938 edition, p. 112; and for 1936-44 in the 1963-64 edition, p. 84.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
Aug. 28, 1944	13th.....	4	Feb. 20, 1945	May 18, 1948
June 28, 1948	14th.....	4	Mar. 8, 1949	July 16, 1952
Sept. 22, 1952	15th.....	4	Feb. 12, 1953	Apr. 17, 1956
June 18, 1956	16th.....	4	Feb. 21, 1957	May 19, 1960
June 27, 1960	17th.....	3	Nov. 17, 1960	Mar. 12, 1963
Apr. 22, 1963	18th.....	1	May 28, 1963	1

¹ Life of Legislature not expired at Apr. 30, 1965.

20.—Twenty-third Ministry of New Brunswick, as at Apr. 30, 1965

(Party standing at latest General Election, Apr. 22, 1963: 31 Liberal and 21 Progressive Conservative.)

Office	Name	Date of First Appointment	Date of Present Appointment
Premier and Attorney General.....	Hon. LOUIS J. ROBICHAUD.....	July 12, 1960	July 12, 1960
Minister of Finance and Industry.....	Hon. L. G. DESBRISAY.....	July 12, 1960	July 12, 1960
Minister of Lands and Mines.....	Hon. H. G. CROCKER.....	July 12, 1960	July 12, 1960
Minister of Education.....	Hon. HENRY G. IRWIN.....	July 12, 1960	July 12, 1960
Minister of Public Works.....	Hon. ANDREW F. RICHARD.....	July 12, 1960	July 12, 1960
Minister of Agriculture.....	Hon. J. ADRIEN LÉVESQUE.....	July 12, 1960	July 12, 1960
Minister of Health.....	Hon. GEORGE L. DUMONT.....	July 12, 1960	July 12, 1960
Minister of Labour.....	Hon. KENNETH J. WEBBER.....	July 12, 1960	July 12, 1960
Minister of Municipal Affairs.....	Hon. JOSEPH E. LEBLANC.....	July 12, 1960	July 12, 1960
Chairman, New Brunswick Electric Power Commission.....	Hon. D. A. RILEY.....	May 28, 1963	July 3, 1963
Minister of Youth and Welfare.....	Hon. WILLIAM R. DUFFIE.....	July 12, 1960	Nov. 30, 1960
Minister of Fisheries.....	Hon. ERNEST RICHARD.....	May 28, 1963	July 8, 1963
Provincial Secretary.....	Hon. DONALD HARPER.....	July 12, 1960	July 8, 1963

Subsection 5.—Quebec

The Government of Quebec consists of a Lieutenant-Governor, an Executive Council and a bicameral legislature—the Legislative Council and the Legislative Assembly. Lieutenant-Governors from Confederation (1867) to 1959 are cited in the 1960 Year Book, p. 109; since that date the position has been held by the Hon. Onésime Gagnon, commissioned to office Feb. 14, 1958, followed by the Hon. Paul Comtois, commissioned to office Oct. 6, 1961.

The Legislative Council has 24 members nominated for life by the Lieutenant-Governor in Council. The Legislative Assembly has 95 elected members and, like the Legislative Council, has the power to bring forward Bills relating to civil and administrative matters and to the amendment or repeal of existing laws. A Bill to be approved by the Lieutenant-Governor must have received the assent of both Houses. Only the Legislative Assembly can bring forward a Bill requiring the expenditure of public money. The maximum life of a legislature is five years. Premiers from Confederation to 1959 are listed in the 1960 Year Book, p. 110.

Each member of the Legislative Council and the Legislative Assembly receives a sessional indemnity of \$10,000, plus an expense allowance of \$2,000 to each Legislative Councillor and \$5,000 to each member of the Legislative Assembly. In addition to this sessional indemnity and allowance, the Premier receives an annual indemnity of \$12,000, an expense allowance of \$4,000 and a lodging allowance of \$2,000; Ministers with Portfolio each receive an annual indemnity of \$10,000 plus a \$5,000 expense allowance; Ministers without Portfolio each receive an indemnity of \$5,000 plus a \$2,000 expense allowance; the Speaker of the Legislative Assembly receives an indemnity of \$8,000, an expense allowance of \$1,000 and a lodging allowance of \$1,000 and the Deputy Speaker receives an indemnity of \$5,000 and an expense allowance of \$1,000; the Leader of the Opposition in the Assembly

receives an indemnity of \$8,000, an expense allowance of \$2,000 and a lodging allowance of \$2,000; the Leader of the Government and the Leader of the Opposition in the Legislative Council each receive an additional sessional indemnity of \$2,000 plus a \$3,000 expense allowance.

21.—Legislatures of Quebec, 1945-65, as at Apr. 30, 1965

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 78; for 1924-35 in the 1938 edition, p. 113; and for 1936-44 in the 1963-64 edition, p. 85.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
Aug. 8, 1944	22nd.....	4	Feb. 7, 1945	June 9, 1948
July 28, 1948	23rd.....	4	Jan. 19, 1949	May 28, 1952
July 16, 1952	24th.....	4	Nov. 12, 1952	Apr. 28, 1956
June 20, 1956	25th.....	4	Nov. 14, 1956	Apr. 27, 1960
June 22, 1960	26th.....	3	Sept. 20, 1960	Sept. 19, 1962
Nov. 15, 1962	27th.....	1	Jan. 15, 1963	1

¹ Life of Legislature not expired at Apr. 30, 1965.

22.—Twenty-third Ministry of Quebec, as at Apr. 30, 1965

(Party standing at latest General Election, Nov. 15, 1962: 63 Liberal, 31 Union Nationale and 1 Independent.)

Office	Name	Date of First Appointment	Date of Present Appointment
Prime Minister, President of the Executive Council, Minister of Finance and Minister of Federal and Provincial Affairs.....	HON. JEAN LESAGE.....	July 6, 1960	Apr. 1, 1961
Minister of Cultural Affairs.....	HON. PIERRE LAPORTE.....	Dec. 5, 1962	Sept. 9, 1964
Attorney-General.....	HON. CLAUDE WAGNER.....	Aug. 31, 1964	Oct. 30, 1964
Minister of Education.....	HON. PAUL GÉRIN-LAJOEIE.....	July 6, 1960	May 13, 1964
Minister of Agriculture and Colonization....	HON. ALCIDE COURCY.....	July 6, 1960	July 6, 1960
Minister of Natural Resources.....	HON. RENÉ LÉVESQUE.....	July 6, 1960	Apr. 1, 1961
Minister of Transportation and Communications.....	HON. CLAIRE KIRKLAND-CASGRAIN.....	Dec. 5, 1962	Nov. 25, 1964
Minister of Roads.....	HON. BERNARD PINARD.....	July 6, 1960	Apr. 1, 1961
Minister of Family and Social Welfare.....	HON. ÉMILIE LAFRANCE.....	July 6, 1960	July 6, 1960
Provincial Secretary.....	HON. BONA ARSENAULT.....	July 6, 1960	Apr. 3, 1963
Minister of Health.....	HON. ALPHONSE COUTURIER.....	July 6, 1960	July 6, 1960
Minister of Tourism, Fish and Game.....	HON. GÉRARD COURNOYER.....	July 6, 1960	Nov. 25, 1964
Minister of Industry and Commerce.....	HON. GÉRARD-D. LÉVESQUE.....	July 6, 1960	Dec. 5, 1962
Minister without Portfolio and Leader of the Legislative Council.....	HON. GEORGE C. MARLER.....	Oct. 8, 1960	Oct. 8, 1960
Minister of Lands and Forests.....	HON. LUCIEN CLICHE.....	Dec. 20, 1960	Dec. 5, 1962
Minister of Public Works.....	HON. RENÉ SAINT-PIERRE.....	Mar. 28, 1961	Mar. 28, 1961
Minister of Municipal Affairs.....	HON. PIERRE LAPORTE.....	Dec. 5, 1962	Dec. 5, 1962
Minister of Labour.....	HON. CARRIER FORTIN.....	Dec. 5, 1962	Aug. 8, 1963
Minister of Provincial Revenue.....	HON. ERIC KIERANS.....	Aug. 8, 1963	Aug. 8, 1963
Minister without Portfolio.....	HON. GASTON BINETTE.....	Jan. 20, 1965	Jan. 20, 1965
Minister without Portfolio.....	HON. ALBERT MORISSETTE.....	Jan. 20, 1965	Jan. 20, 1965

23.—Members of the Legislative Council of Quebec, as at Apr. 30, 1965

(According to seniority)

Name	Division	Date of Appointment
R. O. GROTHÉ.....	De Salaberry.....	Dec. 20, 1927
HECTOR LAFERTÉ (Speaker).....	Stadacona.....	July 25, 1934
J. L. BARIBEAU.....	Shawinigan.....	Jan. 14, 1938
PHILIPPE BRAIS.....	Grandville.....	Feb. 16, 1940
JULES BRILLANT.....	Golfe.....	Jan. 14, 1942
FÉLIX MESSIER.....	De Lanaudière.....	Feb. 12, 1942
ÉDOUARD ASSELIN.....	Wellington.....	Jan. 23, 1946
GEO. B. FOSTER.....	Victoria.....	Aug. 22, 1946
GÉRALD MARTINEAU.....	Launon.....	Aug. 22, 1946
J. OLIER RENAUD.....	Alma.....	Aug. 22, 1946
PATRICE TARDIF.....	De la Vallière.....	July 20, 1952
ÉDOUARD MASSON.....	Repentigny.....	Mar. 12, 1953
ALBERT BOUCHARD.....	La Salle.....	Nov. 24, 1954
JEAN BARRETTE.....	Sorel.....	Oct. 19, 1955
ALBINY PAQUETTE.....	Rougemont.....	Oct. 29, 1958
JOHN P. ROWAT.....	De Lorimier.....	Oct. 29, 1958
ERNEST BENOÎT.....	Kennebec.....	Apr. 8, 1959
ANTONIO AUGER.....	Les Laurentides.....	Sept. 30, 1959
OSCAR GILBERT.....	Bedford.....	Mar. 30, 1960
JEAN RAYMOND.....	Rigaud.....	Apr. 27, 1960
GEORGE C. MARLER (Leader).....	Inkerman.....	Oct. 8, 1960
ARTHUR DUPRÉ.....	Montarville.....	Aug. 21, 1963
LIONEL BERTRAND.....	Mille Isles.....	Nov. 25, 1964

Subsection 6.—Ontario

The Government of Ontario consists of a Lieutenant-Governor, an Executive Council and a House of Assembly. Lieutenant-Governors from Confederation (1867) to 1959 are cited in the 1960 Year Book, p. 112; since that date, the position has been held by the Hon. Justice John Keiller Mackay, appointed effective Dec. 30, 1957, followed by the Hon. William Earl Rowe, appointed effective Mar. 1, 1963.

The House of Assembly, the single-chamber Legislature of the province, is composed of 108 members elected for a statutory term of five years. Premiers from Confederation to 1959 are listed in the 1960 Year Book, p. 112; the Hon. John Parmenter Robarts became Premier on Nov. 8, 1961 upon the resignation of the Hon. Leslie M. Frost, Premier from May 4, 1949.

Besides the regular departments of government, the Niagara Parks Commission, the Ontario Municipal Board, The Hydro-Electric Power Commission of Ontario, the Ontario-St. Lawrence Development Commission, the Ontario Northland Transportation Commission, the Liquor Control Board, the Liquor Licence Board, the Hospital Services Commission and The Water Resources Commission have been created.

Under the provisions of the Legislative Assembly Act (RSO 1960, c. 208 as amended) each member of the Assembly is paid an annual indemnity of \$8,000 and an allowance for expenses at the rate of \$3,000 for every member of the Assembly representing an electoral district within the Municipality of Metropolitan Toronto and \$4,000 for every member representing any other electoral district. In addition, the Speaker receives a special indemnity at the annual rate of \$3,000 and an expense allowance of \$2,000; the Chairman of the Committee of the Whole a special indemnity at the annual rate of \$2,000; and the Leader of the Opposition a salary of \$12,000 per annum in addition to his indemnity as a member. Each member of the Cabinet having charge of a department receives the ordinary indemnity as a member of the Legislature in addition to his salary as a Minister of the Crown. The salary provided in the Executive Council Act for the Premier is \$16,000 and for a Cabinet Minister having charge of a department \$12,000. By the 1956 amendment, every Minister of the Crown in charge of a department, the Minister of the Crown who is

a member of The Hydro-Electric Power Commission of Ontario, and the Leader of the Opposition receives a representation allowance of \$2,000 per annum. Each Minister without Portfolio, other than the Minister who is a member of The Hydro-Electric Power Commission, receives \$2,500 salary and \$1,000 representation allowance per annum, by the Executive Council Act and the Legislative Assembly Act, respectively (RSO 1960).

24.—Legislatures of Ontario, 1945-65, as at Apr. 30, 1965

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 79; for 1924-34 in the 1933 edition, p. 114; and for 1935-45 in the 1963-64 edition, p. 87.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
June 4, 1945	22nd.....	4	July 16, 1945	Apr. 27, 1948
June 7, 1948	23rd.....	4	Feb. 10, 1949	Oct. 6, 1951
Nov. 22, 1951	24th.....	5	Feb. 21, 1952	May 2, 1955
June 9, 1955	25th.....	5	Sept. 8, 1955	May 4, 1959
June 11, 1959	26th.....	4	Jan. 26, 1960	Aug. 16, 1963
Sept. 25, 1963	27th.....	1	Oct. 29, 1963	1

¹ Life of Legislature not expired at Apr. 30, 1965.

25.—Seventeenth Ministry of Ontario, as at Apr. 30, 1965

(Party standing at latest General Election, Sept. 25, 1963: 77 Progressive Conservative, 24 Liberal and 7 New Democratic Party.)

NOTE.—Ministers are shown at date of original appointment as a Minister and at date of appointment to present portfolio, despite the formation of a new Ministry consequent upon the appointment of a new Premier.

Office	Name	Date of First Appointment	Date of Present Appointment
Premier and President of the Council.....	HON. JOHN PARMENTER ROBERTS.	Dec. 22, 1958	Nov. 8, 1961
Minister of Lands and Forests.....	HON. ARCHIBALD KELSO ROBERTS.	Aug. 17, 1955	Oct. 25, 1962
Minister of Public Welfare.....	HON. LOUIS PIERRE CASLÉ.....	Sept. 17, 1948	Aug. 17, 1955
Provincial Treasurer.....	HON. JAMES NOBLE ALLAN.....	Jan. 5, 1955	Apr. 28, 1958
Minister of Public Works.....	HON. THOMAS RAY CONNELL.....	Nov. 1, 1956	Dec. 22, 1958
Minister of Health.....	HON. MATTHEW BULLOCK DYMOND.....	July 18, 1957	Dec. 22, 1958
Minister of Municipal Affairs.....	HON. JOSEPH WILFRID SPOONER...	July 18, 1957	Oct. 25, 1962
Provincial Secretary and Minister of Citizenship.....	HON. JOHN YAREMKO.....	Apr. 28, 1958	Nov. 8, 1961
Minister of Mines.....	HON. GEORGE CALVIN WARDROPE.	Dec. 22, 1958	Nov. 8, 1961
Minister of Labour.....	HON. HENRY LESLIE ROWNTREE.	Nov. 21, 1960	Oct. 25, 1962
Minister of Reform Institutions.....	HON. ALLAN GROSSMAN.....	Nov. 21, 1960	Aug. 14, 1963
Minister of Agriculture.....	HON. WILLIAM ATCHESON STEWART	Nov. 21, 1960	Nov. 8, 1961
Minister of Highways.....	HON. CHARLES STEEL MACNAUGHTON.....	Nov. 8, 1961	Oct. 25, 1962
Minister of Transport.....	HON. IRWIN HASKETT.....	Nov. 8, 1961	Aug. 14, 1963
Minister of Tourism and Information.....	HON. JAMES ALEXANDER CHARLES AULD.....	Oct. 25, 1962	Aug. 14, 1963
Minister of Education.....	HON. WILLIAM GRENVILLE DAVIS.	Oct. 25, 1962	Oct. 25, 1962
Minister of Energy and Resources Management.....	HON. JOHN RICHARD SIMONETT...	Oct. 25, 1962	Oct. 16, 1963
Minister of Economics and Development...	HON. STANLEY JOHN RANDALL...	Nov. 8, 1963	Nov. 8, 1963
Attorney General.....	HON. ARTHUR ALLISON WISHART.	Mar. 26, 1964	Mar. 26, 1964
Minister without Portfolio.....	HON. GEORGE ELLIS GOMME.....	Jan. 12, 1965	Jan. 12, 1965

Subsection 7.—Manitoba

In addition to a Lieutenant-Governor, Manitoba has an Executive Council at present composed of 13 members and a Legislative Assembly of 57 members elected for a statutory term of five years. The Hon. Errick F. Willis, Lieutenant-Governor at Apr. 30, 1965, was sworn in on Jan. 15, 1960. Lieutenant-Governors from Confederation (1870) to 1959 are cited in the 1960 Year Book, p. 113. Premiers since Confederation are listed in the 1960 Year Book, p. 114.

The Premier of the province is paid a salary of \$14,500 per annum and each of the other members of the Cabinet \$12,500. Members of the Legislature are each paid a sessional indemnity of \$3,200 and an expense allowance of \$1,600 plus an allowance of \$10 a day for a period of 60 days continuous sitting including Saturdays and Sundays. The Leader of the Opposition is paid an additional amount of \$6,000 and the Speaker of the Legislature receives \$9,600 which is an amount equal to double the indemnity and expense allowance of an individual member.

26.—Legislatures of Manitoba, 1945-65, as at Apr. 30, 1965

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 80; for 1924-36 in the 1938 edition, p. 115; and for 1937-45 in the 1963-64 edition, p. 88.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
Oct. 15, 1945	22nd.....	4	Feb. 19, 1946	Sept. 29, 1949
Nov. 10, 1949	23rd.....	7	Feb. 14, 1950	Apr. 23, 1953
June 8, 1953	24th.....	5	Feb. 2, 1954	Apr. 30, 1958
June 16, 1958	25th.....	2	Oct. 23, 1958	Mar. 31, 1959
May 14, 1959	26th.....	5	June 9, 1959	Nov. 9, 1962
Dec. 14, 1962	27th.....	1	Feb. 28, 1963	1

¹ Life of Legislature not expired at Apr. 30, 1965.

27.—Fifteenth Ministry of Manitoba, as at Apr. 30, 1965

(Party standing at latest General Election, Dec. 14, 1962: 36 Progressive Conservative, 13 Liberal, 7 New Democratic Party and 1 Social Credit.)

Office	Name	Date of First Appointment	Date of Present Appointment
Premier and Acting Provincial Treasurer....	Hon. DUFF ROBLIN.....	June 30, 1958	June 30, 1958
Minister of Industry and Commerce.....	Hon. EDWARD GURNEY V. EVANS	June 30, 1958	Aug. 7, 1959
Attorney-General.....	Hon. STEWART E. MCLEAN.....	June 30, 1958	Dec. 9, 1963
Minister of Mines and Natural Resources....	Hon. STERLING R. LYON.....	June 30, 1958	Dec. 9, 1963
Minister of Education.....	Hon. GEORGE JOHNSON.....	June 30, 1958	Dec. 9, 1963
Minister of Welfare.....	Hon. J. B. CARROLL.....	June 30, 1958	Feb. 27, 1963
Minister of Health.....	Hon. C. H. WITNEY.....	Aug. 7, 1959	Dec. 9, 1963
Minister of Agriculture and Conservation....	Hon. GEORGE HUTTON.....	Aug. 7, 1959	Aug. 7, 1959
Minister of Public Works.....	Hon. WALTER WEIR.....	Oct. 31, 1961	Nov. 5, 1962
Minister of Labour.....	Hon. OBIE BAILEY.....	Feb. 27, 1963	Feb. 27, 1963
Minister of Municipal Affairs.....	Hon. R. G. SMELLIE.....	Feb. 27, 1963	Feb. 27, 1963
Minister without Portfolio.....	Hon. A. W. HARRISON.....	Feb. 27, 1963	Feb. 27, 1963
Minister of Public Utilities and Provincial Secretary.....	Hon. MAITLAND STEINKOPF.....	June 12, 1963	June 12, 1963

Subsection 8.—Saskatchewan

The Government of Saskatchewan consists of a Lieutenant-Governor, an Executive Council and a Legislative Assembly. Lieutenant-Governors from Confederation (1905) to 1959 are cited in the 1960 Year Book, p. 115; since that date the office has been held by the Hon. F. L. Bastedo, commissioned to office Jan. 27, 1958, followed by the Hon. Robert L. Hanbidge, commissioned to office Mar. 1, 1963.

The statutory number of members of the Legislative Assembly is 59, elected for a maximum term of five years. Premiers from Confederation to 1959 are listed in the 1960 Year Book, p. 115.

The Premier receives \$13,000 and each Cabinet Minister \$10,000 annually in addition to a sessional indemnity. The Leader of the Opposition receives \$10,000 plus an office allowance of \$12,000 per annum, the Speaker \$3,000 and the Deputy Speaker \$2,000. The sessional indemnity of a member of the Legislature is \$4,000 together with an expense

allowance of \$2,000. Each of the members for the three northernmost constituencies of Cumberland, Athabasca and Meadow Lake receives a \$4,335 sessional indemnity and a \$2,165 expense allowance.

28.—Legislatures of Saskatchewan, 1945-65, as at Apr. 30, 1965

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 81; for 1924-34 in the 1938 edition, p. 116; and for 1935-44 in the 1963-64 edition, p. 89.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
June 15, 1944	10th.....	5	Oct. 19, 1944	May 19, 1948
June 24, 1948	11th.....	5	Feb. 10, 1949	May 7, 1952
June 11, 1952	12th.....	4	Feb. 12, 1953	Apr. 25, 1956
June 20, 1956	13th.....	4	Feb. 14, 1957	May 4, 1960
June 8, 1960	14th.....	6	Oct. 11, 1960	Mar. 18, 1964
Apr. 22, 1964	15th.....	1	Feb. 4, 1965	1

¹ Life of Legislature not expired at Apr. 30, 1965.

29.—Tenth Ministry of Saskatchewan, as at Apr. 30, 1965

(Party standing at latest General Election, Apr. 22, 1964: 33 Liberal, 25 Co-operative Commonwealth Federation and 1 Progressive Conservative.)

Office	Name	Date of Appointment
Premier, President of the Executive Council and Provincial Treasurer.....	Hon. W. R. THATCHER.....	May 22, 1964
Minister of Agriculture.....	Hon. A. H. McDONALD.....	May 22, 1964
Minister of Public Health.....	Hon. D. G. SEAUART.....	May 22, 1964
Attorney General and Provincial Secretary.....	Hon. D. V. HEALD.....	May 22, 1964
Minister of Mineral Resources.....	Hon. A. C. CAMELON.....	May 22, 1964
Acting Minister of Industry and Commerce.....	Hon. G. B. GRANT.....	...
Minister of Education.....	Hon. G. J. TRAPP.....	May 22, 1964
Minister of Highways and Transportation and Minister of Telephones.....	Hon. G. B. GRANT.....	May 22, 1964 (May 29, 1964)
Minister of Welfare.....	Hon. D. BOLDT.....	May 22, 1964
Minister of Municipal Affairs.....	Hon. D. T. McFARLANE.....	May 22, 1964
Minister of Labour and Minister of Co-operation and Co-operative Development.....	Hon. L. P. CODERRE.....	May 22, 1964
Minister of Public Works.....	Hon. J. W. GARDINER.....	May 22, 1964
Minister of Natural Resources.....	Hon. J. M. CUELENAERE.....	May 22, 1964

Subsection 9.—Alberta

The Government of Alberta is composed of a Lieutenant-Governor, an Executive Council and a Legislative Assembly. There are 63 members in the Legislative Assembly, elected for a maximum period of five years. The Hon. J. Percy Page, Lieutenant-Governor at Apr. 30, 1965, was commissioned to office Dec. 19, 1959. Lieutenant-Governors from Confederation (1905) to 1959 are listed in the 1960 Year Book, p. 116. Premiers since Confederation are listed in the same edition, p. 117.

Each member of the Legislative Assembly (except the Speaker, the Deputy Speaker and the Leader of the Opposition) receives a sessional indemnity of \$3,600 plus \$1,800 expense allowance plus \$15 for each day during the session when the member is necessarily absent from his ordinary place of residence, both tax free. The Speaker's sessional indemnity is \$6,000 plus \$3,000 expense allowance, the Deputy Speaker's sessional indemnity is \$4,800 plus \$2,400 expense allowance, and the Leader of the Opposition's sessional indemnity is \$7,600 plus \$3,800 expense allowance. Each also receives \$15 for each day during the session when he is necessarily absent from his ordinary place of residence. The Premier, in addition to the sessional indemnity, receives \$16,000 and each of the other Ministers receives \$12,500.

30.—Legislatures of Alberta, 1945-65, as at Apr. 30, 1965

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 82; for 1924-34 in the 1938 edition, p. 117; and for 1935-44 in the 1963-64 edition, p. 90.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
Aug. 8, 1944	10th.....	5	Feb. 22, 1945	July 16, 1948
Aug. 17, 1948	11th.....	5	Feb. 17, 1949	June 28, 1952
Aug. 5, 1952	12th.....	3	Feb. 19, 1953	May 12, 1955
June 29, 1955	13th.....	5	Aug. 17, 1955	May 9, 1959
June 18, 1959	14th.....	5	Feb. 11, 1960	May 9, 1963
June 17, 1963	15th.....	1	Feb. 13, 1964	1

¹ Life of Legislature not expired at Apr. 30, 1965.

31.—Eighth Ministry of Alberta, as at Apr. 30, 1965

(Party standing at latest General Election, June 17, 1963: 60 Social Credit, 2 Liberal and 1 Coalition.)

Office	Name	Date of First Appointment	Date of Present Appointment
Premier, President of Council and Attorney General.....	Hon. ERNEST C. MANNING.....	Sept. 3, 1935	(May 31, 1943 Aug. 2, 1955)
Minister of Municipal Affairs.....	Hon. ALFRED J. HOOKE.....	Apr. 20, 1945	Aug. 2, 1955
Minister of Highways.....	Hon. GORDON E. TAYLOR.....	Dec. 27, 1950	May 1, 1951
Minister of Education.....	Hon. RANDOLPH H. MCKINNON..	July 31, 1964	July 31, 1964
Minister of Public Welfare.....	Hon. LEONARD C. HALMRAST.....	Jan. 3, 1953	Oct. 15, 1962
Minister of Lands and Forests.....	Hon. HENRY A. RUSTE.....	Feb. 16, 1965	Feb. 16, 1965
Provincial Treasurer.....	Hon. ANDERS O. AALBORG.....	Sept. 9, 1952	July 29, 1964
Minister of Public Works.....	Hon. FRED C. COLBORNE.....	Aug. 2, 1955	Nov. 30, 1962
Minister of Industry and Development and Minister of Mines and Minerals.....	Hon. A. RUSSELL PATRICK.....	Aug. 2, 1955	(Sept. 1, 1959 Oct. 15, 1962)
Minister of Labour and Minister of Telephones.....	Hon. RAYMOND REIERSON.....	Aug. 2, 1955	Sept. 22, 1959
Minister of Health.....	Hon. DR. J. DONOVAN ROSS....	Sept. 18, 1957	Sept. 18, 1957
Minister of Agriculture.....	Hon. HARRY E. STROM.....	Oct. 15, 1962	Oct. 15, 1962
Provincial Secretary.....	Hon. AMBROSE HOLOWACH.....	Oct. 15, 1962	Oct. 15, 1962
Minister without Portfolio.....	Hon. IRA McLAUGHLIN.....	Nov. 30, 1962	Nov. 30, 1962
Minister without Portfolio.....	Hon. ETHEL S. WILSON.....	Nov. 30, 1962	Nov. 30, 1962

Subsection 10.—British Columbia

The Government of British Columbia has a Lieutenant-Governor, an Executive Council and a Legislative Assembly. Maj.-Gen. the Hon. George Randolph Pearkes, Lieutenant-Governor at Apr. 30, 1965, was commissioned to office Oct. 12, 1960. Lieutenant-Governors from Confederation (1871) to 1959 are cited in the 1960 Year Book, p. 118.

The Legislative Assembly, elected for a statutory term of five years, has 52 members. Premiers from Confederation to 1959 are cited in the 1960 Year Book, p. 118.

Each member of the Executive Council and the Legislative Assembly receives a sessional allowance of \$5,000 and \$1,500 for expenses. There is also paid to each member a living allowance of \$1,000 and each member receives an allowance of 25 cents per mile of the

distance between his place of residence and the city of Victoria, reckoning such distance, going and coming, according to the nearest mail route. Each member also receives an allowance of \$500 for telegraph and telephone expenses. In addition, the Premier receives a salary of \$20,000 and each member of the Executive Council a salary of \$17,500. The Leader of the Opposition receives a special allowance of \$7,500 for expenses, the Speaker receives a special allowance of \$7,500, and the Deputy Speaker a special allowance of \$2,500.

32.—Legislatures of British Columbia, 1945-65, as at Apr. 30, 1965

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 83; for 1924-37 in the 1938 edition, p. 118; and for 1938-45 in the 1963-64 edition, p. 91.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
Oct. 25, 1945	21st.....	5	Feb. 21, 1946	Apr. 16, 1949
June 15, 1949	22nd.....	4	Feb. 14, 1950	Apr. 10, 1952
June 12, 1952	23rd.....	1	Feb. 3, 1953	Mar. 27, 1953
June 9, 1953	24th.....	4	Sept. 15, 1953	Aug. 13, 1956
Sept. 19, 1956	25th.....	4	Feb. 7, 1957	Aug. 3, 1960
Sept. 12, 1960	26th.....	4	Jan. 26, 1961	Aug. 21, 1963
Sept. 30, 1963	27th.....	1	Jan. 23, 1964	1

¹ Life of Legislature not expired at Apr. 30, 1965.

33.—Twenty-seventh Ministry of British Columbia, as at Apr. 30, 1965

(Party standing at latest General Election, Sept. 30, 1963: 33 Social Credit, 14 New Democratic Party and 5 Liberal.)

Office	Name	Date of First Appointment	Date of Present Appointment
Premier, President of the Council and Minister of Finance.....	Hon. WILLIAM ANDREW CECIL BENNETT.....	Aug. 1, 1952	{Aug. 1, 1952 Aug. 1, 1952 Feb. 15, 1954 Aug. 1, 1952 Mar. 20, 1959
Provincial Secretary and Minister of Social Welfare.....	Hon. WESLEY DREWETT BLACK...	Aug. 1, 1952	{Aug. 1, 1952 Mar. 20, 1954
Attorney-General and Minister of Commercial Transport.....	Hon. ROBERT WILLIAM BONNER...	Aug. 1, 1952	{Aug. 1, 1952 Mar. 20, 1964
Minister of Lands, Forests, and Water Resources.....	Hon. RAY GILLIS WILLISTON.....	Apr. 14, 1954	Mar. 30, 1962
Minister of Agriculture.....	Hon. FRANCIS XAVIER RICHTER..	Nov. 28, 1960	Nov. 28, 1960
Minister of Mines and Petroleum Resources.	Hon. DONALD LESLIE BROTHERS.	Mar. 20, 1964	Mar. 20, 1964
Minister of Highways.....	Hon. PHILIP ARTHUR GAGLARDI..	Aug. 1, 1952	Mar. 15, 1955
Minister of Labour and Minister of Education.....	Hon. LESLIE RAYMOND PETERSON.	Sept. 27, 1956	Nov. 28, 1960
Minister of Industrial Development, Trade, and Commerce.....	Hon. RALPH RAYMOND LOFFMARK	Mar. 20, 1964	Mar. 20, 1964
Minister of Municipal Affairs.....	Hon. DANIEL ROBERT JOHN CAMPBELL.....	Mar. 20, 1964	Mar. 20, 1964
Minister of Health Services and Hospital Insurance.....	Hon. ERIC CHARLES FITZGERALD MARTIN.....	Aug. 1, 1952	Mar. 20, 1959
Minister of Public Works.....	Hon. WILLIAM NEELANDS CHANT.	Mar. 15, 1955	Mar. 15, 1955
Minister of Recreation and Conservation...	Hon. WILLIAM KENNETH KIERNAN	Aug. 1, 1952	Mar. 20, 1964

Subsection 11.—Yukon Territory and Northwest Territories

Yukon Territory.—The Yukon was created a separate Territory in June 1898 (see p. 72). Provision is made for a local government administered by a Commissioner appointed by the Governor in Council. There is an elected Council of seven members (1961) which usually meets twice each year in Whitehorse, the seat of local government; the Council elects its own speaker. The Commissioner administers the government under instructions from the Governor in Council or the Minister of Northern Affairs and National Resources. The Commissioner in Council has power to make ordinances dealing with the imposition of local taxes, sale of liquor, preservation of game, establishment of territorial offices, maintenance of municipal institutions, issue of licences, incorporation of companies, solemnization of marriage, property and civil rights, and generally all matters of a local nature in the Territory. The Commissioner and Council in office on Apr. 30, 1965 were elected in 1964 for a three-year term.

GOVERNMENT OF THE YUKON TERRITORY

(as at Apr. 30, 1965)

Commissioner	G. R. CAMERON
Members of the Council—	
Carmacks-Kluane.....	ROBERT D. MACKINNON
Dawson.....	G. O. SHAW (Speaker)
Mayo.....	F. SOUTHAM
Watson Lake.....	D. TAYLOR
Whitehorse East.....	HERBERT E. BOYD
Whitehorse North.....	KENNETH THOMPSON
Whitehorse South.....	J. WATT
Officers of the Council—	
Territorial Secretary and Clerk of the Council.....	H. J. TAYLOR
Territorial Treasurer.....	K. MCKENZIE
Legal Adviser.....	C. P. HUGHES

The Northern Administration Branch, Department of Northern Affairs and National Resources, has the responsibility for the general administration of the natural resources of the Yukon Territory, except game. The Department maintains lands and mining offices at four points in the Territory. Other departments and agencies of the Federal Government, including the Department of Justice, the Royal Canadian Mounted Police, the Departments of National Defence, Citizenship and Immigration, Mines and Technical Surveys, National Revenue, Transport, Post Office, Agriculture, Fisheries, and Public Works and the Unemployment Insurance Commission also maintain offices in the Yukon Territory.*

Northwest Territories.—As reconstituted on Sept. 1, 1905, the Northwest Territories comprise: (1) all that part of Canada north of the 60th parallel of north latitude, except the portions thereof within the Yukon Territory and the Provinces of Quebec and Newfoundland; and (2) the islands in Hudson Bay, James Bay and Ungava Bay, except those islands within the Provinces of Manitoba, Ontario and Quebec.

The Northwest Territories Act (RSC 1952, c. 331) provides for the appointment of a Commissioner to administer the government of the Territories under instructions given from time to time by the Governor in Council or the Minister of Northern Affairs and National Resources. The Northwest Territories Act, as amended, also provides for a Council of nine members, four of whom are elected in the Mackenzie District and five of whom are appointed by the Governor in Council. The Commissioner in Council has legislative powers respecting such matters as direct taxation, establishment and tenure of Territorial offices, municipal institutions, controverted elections, licences, incorporation of

* Further information on officials of various Federal Government departments serving the Yukon Territory may be obtained from the Director, Northern Administration Branch, Department of Northern Affairs and National Resources, Ottawa.

companies, property and civil rights, administration of justice, game, education, hospitals and generally all matters of a local or private nature. The Council meets once each year in the Territories and at least once each year in Ottawa, which is the seat of government. The resources, except game, remain under the control of the Federal Government. The administration of legislation passed by the Commissioner in Council and the management of resources under federal legislation are conducted by the Northern Administration Branch of the Department of Northern Affairs and National Resources. Administrative offices are located at a number of centres in the Territories including Fort Smith, Yellowknife, Hay River, Inuvik and Frobisher Bay.

COUNCIL OF THE NORTHWEST TERRITORIES

(as at Apr. 30, 1965)

Commissioner	B. G. SIVERTZ
Deputy Commissioner	(Vacant)
Members of the Council—	
Appointed.....	FRANK VALLÉE HUGH CAMPBELL ROBERT N. HARVEY STUART M. HODGSON (One Vacancy)
Elected.....	LYLE R. TRIMBLE JOHN W. GOODALL PETER BAKER ROBERT PORRITT
Officers of the Council—	
Secretary.....	F. H. MURPHY
Legal Adviser.....	DR. HUGO FISCHER

In May 1965, it was announced by the Minister of Northern Affairs and National Resources that an Advisory Commission on the Development of Government in the Northwest Territories was being set up to study the practical problems involved, seek the views of northern residents and recommend to the Federal Government the steps required to provide a greater measure of self-government to the Northwest Territories. The three-member Commission is an impartial, fact-finding group, its members being drawn from fields outside government; its report will be presented to the Government early in 1966.

Section 3.—Municipal Government*

The British North America Act of 1867 placed municipal government in Canada under the control of the provincial legislatures. The powers and responsibilities of municipalities are those delegated to them by statutes passed by their respective provincial legislatures. Some of these statutes apply to all municipalities within a province, some to a certain type or group and many to one municipality only. The types of municipal organization in existence and the nature of the municipal services provided vary greatly from region to region and are adjusted from time to time to meet changing needs and conditions.

In addition to the well-known types of organized municipalities—cities, towns, villages, counties, etc.—there are various other forms of local government organization. Certain municipal government bodies encompass a number of municipalities or parts of municipalities. For example, special district authorities (greater water and sewerage and drainage districts, irrigation districts and health units) may provide services to a number of municipalities. Similarly, metropolitan government authorities provide certain services to a number of area municipalities. In some provinces, the more sparsely settled areas do not have organized municipalities. Instead, they are divided into local improvement districts, local government districts or special areas in which the local government services are administered by officials appointed by the provincial Departments of Municipal Affairs.

* Revised (as at Jan. 1, 1965) in the Public Finance and Transportation Division, Dominion Bureau of Statistics.

The major local revenue source available to municipalities is the taxation of real property. It is supplemented in varying degrees by taxation of personal property, business, persons (poll taxes) and tenants. In two provinces municipalities may levy an amusement tax, in three they may impose sales taxes on specific commodities. Miscellaneous general revenue is derived from licences, permits, rents, concessions, franchises and fines. A great many municipalities operate utilities for the provision of water and, in many instances, electricity, gas, transportation, telephone and other services. These sometimes provide surplus funds that may become available to help pay for other municipal services. On the other hand, expenditures of municipalities often include provision for the deficits of their utilities and enterprises.

In differing degrees and with varying provincial assistance, municipalities are responsible for the following services: protection to persons and property through police and fire forces, courts and local gaols, and inspection services; roads and streets; sanitation; certain health and welfare services; and some recreation and other community services. In most provinces, municipalities are responsible for levying and collecting local education taxes on behalf of the local schools, and often for borrowing capital funds for school construction. Local administrative responsibility for education lies with boards of trustees separate from the councils that govern municipalities (except Alberta; see p. 110).

All provinces give some form of financial assistance to their municipalities. This may be in the form of monetary grants, such as unconditional subsidies which may be spent as the municipalities see fit, or grants-in-aid of specific services that are the municipal responsibility. The provinces may also make loans to municipalities for capital purposes or guarantee the bonds issued by the municipalities. Other forms of indirect assistance are the resumption by the provincial governments of responsibilities formerly delegated to the municipalities and the extension of municipal taxing privileges into what were formerly considered to be provincial revenue fields. The provinces also provide various technical and consultative services to their municipalities.

The following paragraphs describe municipal organization in each province and in the Territories as at Jan. 1, 1965. In Table 34 (which gives the number of each type of municipality in each province) all fully incorporated cities, towns and villages are regarded as 'urban' municipalities.

Newfoundland.—The Province of Newfoundland has two cities—St. John's and Corner Brook. A number of the province's many settlements have been organized into 49 towns, four rural districts, seven local improvement districts and 51 local government communities. The towns, rural districts and local improvement districts operate under the Local Government Act; towns and rural districts have elected councils and local improvement districts have appointed trustees. Local government communities established under the Community Councils Act in the smaller settlements have limited powers and functions. There are no rural municipalities in the usual sense. Only about one fifth of 1 p.c. of the total area is municipally organized. Municipalities are supervised by the Department of Municipal Affairs and Supply.

Prince Edward Island.—In this province, one city and seven towns have been incorporated under special Acts and 17 villages have been established under the Village Services Act. There is no municipal organization for the remainder of the province although it is divided into school sections which have elected school boards.

Nova Scotia.—Municipal organization in Nova Scotia covers the whole of the province. The three cities operate under special charters and special legislation. Thirty-nine towns operate under the Town Incorporation Act but there are no municipalities incorporated

as villages. Cities and towns are independent of counties. The rural area is divided into 18 counties which, in themselves, do not represent units of local government. However, 12 of these counties each comprise one municipality and the other six each comprise two municipalities, making a total of 24 rural municipalities. Supervision of municipalities is exercised through the Department of Municipal Affairs.

New Brunswick.—This province is divided into 15 counties which are incorporated municipalities and have direct powers of local self-government as rural municipalities, although certain of their powers often apply in both rural and urban municipalities. The seven cities have special charters and the 20 towns operate under the Towns Incorporation Act. There is also one village. There are 57 local improvement districts and 10 commissions within the counties but outside the cities, towns and village; these have been incorporated for the provision of limited municipal services. The Department of Municipal Affairs exercises supervision.

Quebec.—Municipal divisions in Quebec embrace the more thickly settled areas comprising about one third of the province and the remainder is governed by the province as 'territories'. The organized area is divided into 74 county municipalities which are divided again into local municipalities and designated as village, township or parish municipalities or simply as municipalities. The counties as such have no direct powers of taxation. Funds to finance the services falling within their jurisdiction are provided by the municipalities forming part thereof. Parts of some counties are not yet organized into incorporated units of local government, being in outlying areas and having little or no population. There are 325 villages and 1,110 townships and parishes. A small number of these are independent of the counties in which they are located. The Municipal Code governs local municipalities and the 65 cities and 180 towns have special Acts. The supervision and assistance of municipalities is through the Department of Municipal Affairs and the Quebec Municipal Commission. Municipal statistics are gathered by the Quebec Bureau of Statistics.

The active functions of the Montreal Metropolitan Corporation are limited because of the ability of the area municipalities to fulfil their own obligations. The Corporation services borrowings contracted before Apr. 1, 1961, when the Montreal Metropolitan Boulevard became a provincial responsibility, and apportions costs incurred in the area municipalities for streets constructed on each side of the Boulevard.

Ontario.—Slightly more than one tenth of the area of Ontario is municipally organized and the remainder is governed entirely by the provincial government. The older settled section of the province is divided into 43 counties, five of which are united with others for administrative purposes. Each county, although it is an incorporated municipality, is comprised of the towns, villages and townships situated within its borders and these provide its revenue. There are 32 cities, 157 towns, 159 villages, 572 townships and 18 improvement districts in the province. Some of each are located in the northern districts which are not organized into counties. Supervisory control of municipalities is exercised by the Department of Municipal Affairs and the Ontario Municipal Board under the Municipal Act and other Acts governing aspects of municipal government.

The Municipality of Metropolitan Toronto, in existence since Jan. 1, 1954, encompasses one city, four towns, three villages and five townships. The Metropolitan Council is composed of the mayor, two senior controllers and the senior alderman of each of the nine wards of the City of Toronto, and the head of the council of each of the 12 suburban municipalities. The chairman is elected by the councillors and need not be a councillor of an area municipality. The Council has jurisdiction over assessments, water supply,

sewerage works, metropolitan road systems, transit, municipal housing developments, community planning, parks and recreation areas, the Court House, certain health and welfare services and the correlation of educational facilities in the metropolitan area. It also controls a unified metropolitan police force and a metropolitan licensing commission. Expenditures are financed by a levy apportioned among the area municipalities. All borrowing of the area municipalities for capital purposes is done by the Municipality of Metropolitan Toronto.

Manitoba.—Manitoba has nine cities, which derive their powers from special Acts and do not come under the supervision of the Department of Municipal Affairs. The Department supervises the 36 towns, 41 villages and 110 rural municipalities under the Municipal Act. There are local government districts in settled areas not within municipalities where the province has placed a resident administrator to carry out the functions of a municipal council. The unorganized areas are the direct responsibility of the provincial government.

The Metropolitan Corporation of Greater Winnipeg has been in existence since Nov. 1, 1960. Its council is separate and distinct from those of the 16 area municipalities. The councillors are elected as individuals from ten new districts, each containing approximately the same number of voters. The council has jurisdiction over planning, zoning, land development, assessments, arterial roads, water supply, sewage disposal, transit and other services. It borrows money only for its own undertakings and leaves to its area municipalities the responsibility for welfare, police, fire protection and other services. Expenditures are financed by a proportion of the business and other taxes levied on industrial or commercial property by the area municipalities and by a uniform levy on the equalized assessment of all taxable real property in the area municipalities.

Saskatchewan.—All municipalities in Saskatchewan derive their powers from general Acts that are designated with the name of the type of municipality. There are 11 cities, 121 towns, 364 villages and 296 rural municipalities. The area so organized consists of most of the southern two fifths of the province; the remainder of this portion is administered for local purposes by the province in unincorporated local improvement districts. The northern three fifths is sparsely populated and without local government, although some municipal services are provided by the province through operation of the Northern Administration District. Municipalities are supervised by the Department of Municipal Affairs.

Alberta.—The whole Province of Alberta is under some type of municipal organization. The province has an Act applying to each type of municipality and under these Acts the Department of Municipal Affairs supervises the nine cities, 89 towns, 167 villages, 20 municipal districts and 28 counties. The latter administer schools as well as municipal services. Municipal government for the 51 improvement districts and three special areas is provided by the Department of Municipal Affairs.

British Columbia.—Less than one half of 1 p.c. of the area of British Columbia is organized into municipalities. Additional small areas have sufficient population to require administration of local activities by the provincial government. There are 32 cities, eight towns, 58 villages and 32 districts; the latter are mostly rural municipalities although there are some districts adjacent to the principal cities of Victoria and Vancouver that are largely urban in character. It should be emphasized, however, that the application of the name 'city' is somewhat different from the commonly accepted meaning, in that several of them have populations of fewer than 3,000 and perhaps one half or more would not normally be incorporated as cities in another province. Municipalities are supervised by the Department of Municipal Affairs.

In addition to the above types of municipalities, there are unincorporated improvement districts that have been set up to provide certain municipal services such as protection, waterworks, irrigation, etc. These districts are under the supervision of the Department of Lands, Forests, and Water Resources.

Yukon and Northwest Territories.—There are two cities, Whitehorse and Dawson, and one unincorporated town, Mayo, in the Yukon Territory and two municipal districts, Yellowknife and Hay River, in the Northwest Territories, all of which provide some municipal services to their local areas. These are not shown in Table 34.

34.—Municipalities classified by their Official Designation and Statistical Classification, by Province, as at Jan. 1, 1965

Item	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total
OFFICIAL DESIGNATION¹											
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Local municipalities.....	113	25	66	100 ²	1,681	939	197	792	313	130	4,356
Metropolitan corporations..	...	...	...	...	1 ⁴	1 ⁵	1 ⁶	...	...	...	3
Cities.....	2	1	3	7	65	32	9	11	9	32	171
Towns.....	60 ⁷	7	39	20	180	157	36	121	89	8	717
Villages.....	51 ⁸	17	...	1	325	159	41	364	167	58	1,183
Rural ⁹.....	...	...	24	72 ³	1,110	590 ¹⁰	110 ¹¹	296 ¹²	48 ¹³	32 ¹⁴	2,232
Quebec and Ontario counties	...	...	...	...	75 ¹⁵	38	...	...	...	...	113
Totals, Incorporated Municipalities.....	113	25	66	100	1,756	977	197	792	313	130	4,469
STATISTICAL CLASSIFICATION²											
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Municipalities in Metropolitan Areas.....	2	...	3	5	118	74	17	...	8	20	247
Urban ¹⁶	2	...	2	3	103	45	10	...	3	8	176
Rural.....	...	...	1	2	15	29	7	...	5	12	71
Other urban municipalities..	111	25	40	25	468	304	77	496	262	90	1,898
Other rural municipalities..	...	...	23	70	1,095	561	103	296	43	20	2,211
Semi-urban.....	...	...	...	...	...	48 ¹⁷	...	...	...	...	48
Other.....	...	...	23	70	1,095	513	103	296	43	20	2,163
Quebec and Ontario counties	...	...	...	...	75	38	...	...	...	...	113
Totals, Incorporated Municipalities.....	113	25	66	100	1,756	977	197	792	313	130	4,469

¹ Municipalities grouped according to their official nomenclature, which is roughly indicative of size and nature (see footnote 9).

² Municipalities grouped under the classification devised by the Dominion-Provincial Conferences on Municipal Statistics, designed to bring municipalities into comparable groups for statistical presentation.

³ Includes the 57 local improvement districts; excludes commissions.

⁴ The Montreal Metropolitan Corporation.

⁵ The Municipality of Metropolitan Toronto.

⁶ Designated by the province as towns (49), rural districts (4) and local improvement districts (7); all operate under the same Act.

⁷ Classified by the province as community councils.

⁸ Rural municipalities are designated by different names in the different provinces.

⁹ Includes the 18 improvement districts.

¹⁰ Includes the 5 units of self-government known as suburban municipalities; excludes the unincorporated local government districts.

¹¹ Excludes the 12 unincorporated local improvement districts.

¹² Includes the 26 county municipalities; excludes the unincorporated improvement districts and the special areas.

¹³ Excludes the unincorporated improvement districts and the 2 local districts.

¹⁴ Includes the Inter-Urban Corporation of Ile Jésus (formerly Laval County).

¹⁵ Includes municipalities shown wholly or partly in metropolitan areas by the 1961 Census, with subsequent revisions to take care of annexations, etc. Included in "Urban" are the Montreal Metropolitan Corporation, the Municipality of Metropolitan Toronto and the Metropolitan Corporation of Greater Winnipeg.

¹⁶ Classified by the province as suburban or semi-urban.

Section 4.—Federal and Provincial Royal Commissions

Federal Royal Commissions Established.—Royal Commissions established from May 1, 1964 to Apr. 30, 1965 under Part I of the Federal Inquiries Act are given here in continuation of those previously reported in the Year Books beginning with the 1940 edition, pp. 1108-1110. Any Commission established between Apr. 30, 1965 and the date of going to press will be found in the Register of Official Appointments, Chapter XXVII, Part III.

<i>Nature of Commission</i>	<i>Chief Commissioner</i>	<i>Date Established</i>
To inquire into problems relating to the future of the aircraft overhaul base maintained by TCA at Winnipeg International Airport.	D. A. THOMPSON.....	June 11, 1964
To inquire into circumstances surrounding the crash of a Douglas DC8 aircraft at Ste. Thérèse, Que.	Hon. GEORGE SWAN CHALLIES....	Oct. 8, 1964
To inquire into export marketing problems of the salt fish industry in the Atlantic Provinces.	D. B. FINN.....	Oct. 29, 1964
To inquire into allegations about improper inducements and pressures on counsel acting for the extradition of Lucien Rivard.	Hon. FRÉDÉRIC DORION.....	Nov. 25, 1964
To inquire into irregularities in 1963 federal election in British Columbia.	Hon. N. T. NEMETZ.....	Mar. 2, 1965

Reports of Federal Royal Commissions.—Reports of Federal Royal Commissions issued during the period May 1, 1964 to Apr. 30, 1965 were as follows:—

- Royal Commission on Health Services, established June 20, 1961. Vol. 1. Ottawa, 1964. 814 p. \$10. (Cat. No. Z1-1961/3-1). Vol. 2. Ottawa, 1965. 375 p. \$5. (Cat. No. Z1-1961/3-2).
- Royal Commission on Bilingualism and Biculturalism, established July 19, 1963: Preliminary report. Ottawa, 1965. 211 p. \$1 English edition—(Cat. No. Z1-1963/1-3). \$2 bilingual edition—(Cat. No. Z1-1963/1-3B).
- Royal Commission on Banking and Finance, established Oct. 18, 1961. Appendix Vol. Ottawa, 1964. 435 p. \$5. (Cat. No. Z1-1961/2-15A).

Provincial Royal Commissions.—The following provincial Royal Commissions were established during the period May 1, 1964 to Apr. 30, 1965:—

<i>Province and Nature of Commission</i>	<i>Chief Commissioner or Chairman</i>	<i>Date Established</i>
NEWFOUNDLAND		
To inquire into house construction costs in the city of St. John's.	Prof. PHILIP H. WHITE.....	June 5, 1964
To inquire into education in Newfoundland.....	Dr. PHILIP J. WARREN.....	Dec. 11, 1964
To inquire into transportation in Newfoundland....	Hon. PHILIP J. LEWIS.....	Dec. 11, 1964
To inquire into electric energy in Newfoundland....	GEORGE C. ROWE.....	Dec. 11, 1964
To inquire into medical services and hospital facilities in Newfoundland.	Rt. Hon. the Baron BRAIN.....	Feb. 8, 1965
PRINCE EDWARD ISLAND		
To inquire into higher education in Prince Edward Island.	Dr. J. SUTHERLAND BONNELL....	July 9, 1964
QUEBEC		
To inquire into Sunday work in the pulp and paper industry.	His Hon. Judge RICHARD ALLEYN.	Aug. 26, 1964

<i>Province and Nature of Commission</i>	<i>Chief Commissioner or Chairman</i>	<i>Date Established</i>
ONTARIO		
To study and inquire into the laws of Ontario for the purpose of determining how far there may be unjustified encroachment on the personal freedoms, rights and liberties of Canadian citizens and others resident in Ontario by the government or bodies exercising authority under or administering the laws of the province, and to recommend such changes in the laws, procedures and processes as may be necessary and desirable to safeguard such fundamental and basic rights, liberties and freedoms of the individual from infringement by the State or any other body.	The Hon. Chief Justice JAMES CHALMERS McRUER.	May 21, 1964
To inquire into the causes of the recent fluctuations in the prices and shares of Windfall Oils & Mines Ltd. and other mining corporations in relation to the recent mineral discoveries in the Timmins area; activities pertaining to the dealings in shares of such corporations; and activities of the Toronto Stock Exchange and the Ontario Securities Commission in connection therewith.	Hon. Justice ARTHUR KELLY.....	Aug. 13, 1964
To inquire into the affairs of Farmers' Allied Meat Enterprises Co-operative Limited.	Hon. Justice CAMPBELL GRANT....	Mar. 9, 1965
MANITOBA		
To inquire into real property mortgage loan transactions.	G. P. R. TALLIN.....	May 27, 1964
To inquire into Grand Rapids water haulage.....	The Hon. Chief Justice G. E. TRITSCHLER.	Dec. 24, 1964
SASKATCHEWAN		
To inquire into and report on organization and administrative problems or areas which are of concern to all or a number of departments, agencies, boards or commissions of the Government of Saskatchewan.	F. W. JOHNSON.....	July 7, 1964

PART III.—ADMINISTRATIVE FUNCTIONS OF THE FEDERAL GOVERNMENT

Section 1.—Financial Administration*

The financial affairs of the Government of Canada are administered and controlled under the fundamental principles that no tax shall be imposed and no money shall be spent without the authority of Parliament and that expenditures shall be made only for the purposes authorized by Parliament. The most important constitutional provisions relating to Parliament's control of finances are contained in the British North America Act; this Act provides that all taxing and appropriating measures must originate in the House of Commons and all requests for grants must come from the Crown through responsible Ministers, and for such requests the Government is solely responsible. In practice, financial control is exercised through a budgetary system based on the principle that all the financial needs of the Government for each fiscal year be considered at one time so that both the current condition and the prospective condition of the public treasury are clearly in evidence.

Estimates and Appropriations.—In the latter part of the calendar year, at the request of the Minister of Finance, each of the several departments prepares its estimates for the following fiscal year and submits them by a specified date to the Treasury Board.

* Prepared under the direction of H. R. Balls, Comptroller of the Treasury, Department of Finance, Ottawa.

This Board is a Committee of the Queen's Privy Council for Canada and consists of the Minister of Finance as chairman and five other Ministers named by the Governor in Council, with such additional members of the Privy Council as the Governor in Council may nominate to serve as alternates. A senior officer of the Department of Finance acts as secretary to the Board and the necessary staff is provided by that Department. Under the Financial Administration Act, the Board has a statutory duty to advise the Governor in Council on matters relating to finance, estimates, expenditures, financial commitments, establishments, revenues, accounts, terms and conditions of employment of persons in the public service and general administrative policy in the public service.

On receipt, departmental estimates are assembled by officers of the Treasury Board, comparisons are made with the expenditures of previous years and digests of supporting data and other pertinent information are prepared. The Board reviews each departmental submission in the light of probable revenues and of governmental policy generally, usually consulting the appropriate Minister and departmental officials. Expenditure proposals may be rejected or reduced and unresolved differences of opinion may be referred to the Cabinet for decision. When the Board is satisfied with their substance and form, these estimates, known as the Main Estimates, are submitted to the Cabinet and later to the Governor General for approval and are then laid before the House of Commons.

On motion of the Minister of Finance, the estimates are referred for consideration to the Committee of Supply, which is a committee of the whole House. However, the estimates of certain departments may first go to select committees of the House; these, after being reported upon to the House, are referred back to the Committee of Supply. The consideration of the estimates usually extends over a period of several months. Each vote is the subject of a separate resolution and Members of the House may question the Minister on any item but no private member or Minister on his own responsibility can introduce any new expenditure proposal or any amendment to an estimates item that would result in an increased expenditure. When the examination of the individual items has been completed, the estimates are referred to the Committee of Ways and Means, also a committee of the whole House, which is asked to consider a resolution for the introduction of a Bill to appropriate money to meet the requirements as approved in the Committee of Supply. When such resolution is passed, an appropriation Bill is introduced which, when approved by the House of Commons and the Senate, is given Royal Assent and becomes law. Grants in the Appropriation Acts are grants to the Crown and funds cannot be disbursed until supply, voted by Parliament to the Crown, is released by a warrant prepared on an Order of the Governor in Council and signed by the Governor General.

As weeks or months may elapse after the commencement of the fiscal year before the main Appropriation Act is passed, funds are made available for the conduct of government functions by the passage of an interim supply Bill granting one twelfth or one sixth of the total of each item in the estimates, equivalent to one or two months' supply, respectively. Additional interim supply Bills may be introduced if required, awaiting Parliament's detailed consideration of the estimates. In addition, to cover any new and unforeseen requirements that might arise during the year, supplementary estimates are usually introduced after some months of the fiscal year have elapsed, and just prior to the end of the fiscal year further supplementary estimates are laid before the House. These supplementary estimates are dealt with in the same manner as the Main Estimates.

In addition to the expenditure items included in the annual Appropriation Acts, there are a number of items, such as interest on the public debt, family allowances and old age assistance payments, which have been authorized under the provisions of other statutes. Although it is not necessary for Parliament to pass annually on these items, they are included in the Main Estimates for purposes of information. Statutory provision is also made for the expenditure of public money in emergencies where no specific parliamentary appropriation is available. Under the Financial Administration Act, the Governor in Council, upon the report of the Minister of Finance that there is no appropriation for the expenditure and upon the report of the appropriate Minister that the expenditure is urgently required, may order the issuance of a special warrant authorizing disbursement

of the amount required. Such warrants may be issued only when Parliament is not in session and every warrant is published in the *Canada Gazette* within thirty days of issue. The Fire Losses Replacement Account Act also provides for emergency expenditures for the urgent repair or replacement of property destroyed or damaged by fire, where there is not sufficient money available in the appropriation for the Service suffering loss. Such amounts must be charged subsequently to an appropriation or included in the estimates for the department or agency concerned.

In addition, disbursements are made for purposes not reflected in the budgetary accounts but recorded in the Government's statement of assets and liabilities, such as loans to and investments in Crown corporations, loans to international organizations and to national, provincial and municipal governments, and loans to veterans. There are also disbursements in connection with deposit and trust accounts and annuity, insurance and pension accounts which the Government holds or administers, including the old age security fund which is operated as a separate entity. Although these disbursements are excluded from the calculation of the annual budgetary surplus or deficit, they are all subject to appropriation by Parliament either in the annual Appropriation Acts or in other legislation.

The Budget.—Some time after the Main Estimates have been introduced, the Minister of Finance presents his annual Budget Speech in the House of Commons. Budget papers, tabled for the information of Parliament at least one day prior to the presentation of the Budget, include a general review of economic conditions and a preliminary review of the Government's accounts for the fiscal year then ending. The Budget Speech itself reviews the state of the national economy and the financial operations of the Government for the previous fiscal year and gives a forecast of the probable financial requirements for the year ahead, taking into account the Main Estimates and making allowances for supplementary and further supplementary estimates and probable lapsings. At the close of his address, the Minister tables the formal resolutions for changes in the existing tax rates and customs tariff which, in accordance with parliamentary procedure, must precede the introduction of any money Bills. These resolutions give notice of the amendments which the Government intends to ask Parliament to make in the taxation statutes. However, if a change is proposed in a commodity tax, such as a sales tax or excise duty on a particular item, it is usually made effective immediately; the legislation, when passed, is made retroactive to the date of the Speech.

The Budget Speech is delivered in support of a motion that the House go into Committee of Ways and Means, the debate on which usually lasts for several weeks. With the passage of the motion, the way is clear for the consideration of the Budget resolutions and, when these have been approved by the Committee, a report to this effect is made to the House and the tax Bills are introduced and thereafter dealt with in the same manner as all other government financial legislation.

Revenues and Expenditures.—The administrative procedures whereby revenues are collected and expenditures are made are, for the most part, contained in the Financial Administration Act.

With respect to revenues, the basic requirement is that all public money shall be paid into the Consolidated Revenue Fund, which is defined as the aggregate of all public money on deposit to the credit of the Receiver General. The Treasury Board has prescribed detailed regulations governing the receipt and deposit of such money. For the actual custody of public money, use is made of the Bank of Canada and the chartered banks. Balances are allocated to the various chartered banks on the basis of a percentage allocation established by agreement among all the banks and communicated to the Department of Finance by the Canadian Bankers' Association. The daily operating account is maintained with the Bank of Canada and the division of funds between it and the chartered banks takes into account the immediate cash requirements of the Government and consideration of monetary policy. The Minister of Finance may purchase and hold securities of, or guaranteed by, Canada and pay for them out of the Consolidated Revenue Fund or may sell such securities and pay the proceeds into the Fund. Thus, if cash balances in the Fund

are in excess of requirements for the immediate future they may be invested in interest-earning assets. In addition, the Minister of Finance has established a purchase fund to assist in the orderly retirement of the public debt.

The principal agencies exercising control over expenditures are the Treasury Board (previously described) and the Comptroller of the Treasury, who has the status of a deputy head but is an officer of the Department of Finance, with representatives who act as accounting and disbursing officers stationed in all the principal departments.

The Treasury Board exercises detailed central control over the budgets, programs and staffs of departments and over financial and administrative matters generally. Although the most important part of this control function is exercised during the consideration of the estimates, the Board maintains continuous control over certain types of expenditure to ensure that the scale of activities and commitments for the future is held within approved policies, that departments follow uniform, efficient and economical practices, and that the Government is informed of and approves any major development of policy or significant transaction that might give rise to public or parliamentary criticism.

To ensure that the decisions of Parliament, the Government and Ministers in regard to expenditures are enforced, there is a centralized accounting and disbursing system. The Financial Administration Act provides that no payment shall be made out of the Consolidated Revenue Fund without the authority of Parliament and no charge shall be made against an appropriation except upon the requisition of the appropriate Minister or a person authorized by him in writing. These requisitions, and certificates that the work has been performed, the material supplied or the services rendered and that the price charged is reasonable or according to contract, together with such documents as may be required, are presented to the Comptroller of the Treasury. If the charge is a lawful one against the appropriation and does not exceed the amount of the appropriation or reduce it below the amount necessary to meet other commitments, and does not contravene any applicable legislative or executive requirements, the Comptroller will make the payment. However, if he declines to make a payment, disallows an item in an account or refuses to give a certificate, the Minister concerned may report the circumstances to the Treasury Board for decision and the Board may confirm or overrule the action of the Comptroller. The Comptroller may transmit to the Board any requisition with respect to which he desires its direction and the Board may order that payment be made or refused.

At the beginning of each fiscal year each department submits to the Treasury Board, through the Comptroller, a division or allotment of each item included in its estimates. Once approved by the Board, these allotments cannot be varied or amended without the approval of the Board and expenditures charged to appropriations are limited to such allotments. To avoid over-expenditures within a fiscal year, the Comptroller records and controls commitments due to come in course of payment within the year for which Parliament has provided or has been asked to provide appropriations. The Government, through the Treasury Board and the Comptroller, also maintains careful control over commitments made under contract that will fall due in succeeding years, since it must be prepared in future to ask Parliament for appropriations to cover them. Any unexpended amounts in the annual appropriations lapse at the end of the year for which they are granted, but for thirty days subsequent to Mar. 31 payments may be made and charged to the previous year's appropriations for debts incurred prior to the end of that fiscal year.

Under the Financial Administration Act, every payment pursuant to an appropriation is made under the control and direction of the Comptroller by cheque drawn on the account of the Receiver General or by such other instrument as the Treasury Board may direct. In practice, the paid Comptroller's cheques are cleared daily by the chartered banks through the Bank of Canada to the Cheque Adjustment Branch of the Comptroller's Office, and reimbursement is made by means of a cheque drawn on the Receiver General's account with the Bank of Canada.

Public Debt.—In addition to the collection and disbursement of public money for budgetary and non-budgetary purposes, the Government receives and disburses substantial sums in connection with its public debt operations. The Minister of Finance is authorized to borrow money by the issue and sale of securities at such rate of interest and subject to such terms and conditions as the Governor in Council may approve. Although the specific authority of Parliament is required for new borrowings, the Financial Administration Act authorizes the Governor in Council to approve the borrowing of such sums of money as are required for the redemption of maturing or called securities and, to ensure that the Consolidated Revenue Fund will be sufficient to meet lawfully authorized disbursements, he may also approve the temporary borrowing of such sums as are necessary for periods not exceeding six months. The Bank of Canada acts as the fiscal agent of the Government in the management of the public debt.

Accounts and Financial Statements.—Under the Financial Administration Act, accounts are kept to show the revenues of Canada, the expenditures made under and the commitments chargeable against each appropriation, the other payments into and out of the Consolidated Revenue Fund, and such of the assets and direct and contingent liabilities as the Minister of Finance believes are required to give a true and fair view of the financial position of Canada. The statement of assets and liabilities is designed to disclose the amount of the net debt, which is determined by offsetting against the gross liabilities only those assets regarded currently as readily realizable or interest- or revenue-producing. Fixed capital assets, such as government buildings and public works, are charged to budgetary expenditures at the time of acquisition or construction and are shown on the statement of assets and liabilities at a nominal value of \$1.

Annually, on or before Dec. 31 or, if Parliament is not then in session, within fifteen days after the commencement of the ensuing session, the *Public Accounts* is laid before the House of Commons by the Minister of Finance. The *Public Accounts* contains a survey of the financial transactions of the fiscal year, statements of the revenues and expenditures for the year and of the assets and direct and contingent liabilities as at the end of the year, together with such other accounts and information as are necessary to show the financial transactions and financial position of Canada or which are required by law to be reported in the *Public Accounts*. Monthly financial statements are also published in the *Canada Gazette*.

The Auditor General.—The Government's accounts are subject to an independent examination by the Auditor General who is an officer of Parliament. With respect to expenditures, this examination is a post-audit for the purposes of reporting whether the accounts have been faithfully and properly kept and whether the money has been expended for the purposes for which it was appropriated by Parliament and the expenditures have been made as authorized; any audit before payment is the responsibility of the Comptroller of the Treasury. With respect to revenues, the Auditor General is required to ascertain that all public money is fully accounted for and that the rules and procedures applied are sufficient to ensure an effective check on the assessment, collection and proper allocation of the revenue. With respect to public property, he is required to satisfy himself that essential records are maintained and that the rules and procedures applied are sufficient to safeguard and control such property. The Auditor General reports to Parliament the results of his examination, calling attention to any case which he considers should be brought to the notice of the House. He also reports to Ministers, the Treasury Board or the Government any matter which in his opinion calls for attention so that remedial action may be taken promptly.

Public Accounts Committee.—It is the usual practice to refer the *Public Accounts* and the *Auditor General's Report* to the Public Accounts Committee of the House of Commons, which may review them and report its findings and recommendations to the House of Commons.

Section 2.—Departments, Boards, Commissions, etc.*

The following paragraphs indicate the functions of the various departments of government and the special boards and commissions in connection with the work of government.

Although it is not possible, owing to the limitations of space, to enumerate in this Section the details of each service or the divisions or sections of all departments, the main branches are given along with those services that differ in some quality from the larger class of subjects handled by a department. The work of many of these departments and boards is given in detail in later Chapters of this volume. The Index will be useful in locating required information.

Department of Agriculture.—This Department was established in 1867 (SC 1868, c. 53) and undertakes work on all phases of agriculture. Research and experimentation are carried out by the Research Branch; the maintenance of standards and protection of products by the Production and Marketing Branch and the Health of Animals Branch; the Canada Grain Act, as it pertains to the inspection, weighing, storage and transportation of grain, is administered by the Board of Grain Commissioners; land reclamation and development is carried out by the Prairie Farm Rehabilitation Administration; and farm income security and price stability are provided under the Crop Insurance Act, the Prairie Farm Assistance Act and the Agricultural Stabilization Act. The Farm Credit Corporation and the Board of Grain Commissioners report to Parliament through the Minister of Agriculture.

Air Transport Board.—The Air Transport Board was established in 1944 by amendment of the Aeronautics Act. The Board is responsible for the economic regulation of commercial air services in Canada and for advising the Minister in the exercise of his duties and powers under the Act in all matters relating to civil aviation. The regulatory function relates to Canadian air services within Canada and abroad, and to foreign air services operating into and out of Canada. It involves the licensing of all such services and the subsequent regulation of the licensees in respect of their economic operation and the provision of service to the public. The Board reports to Parliament through the Minister of Transport.

Auditor General's Office.—This Office originated in 1878 (SC 1878, c. 7) and currently functions under the Financial Administration Act (RSC 1952, c. 116). The Auditor General is responsible for examining accounts relating to the Consolidated Revenue Fund and to public property, and for reporting annually to the House of Commons the results of his examinations. He also audits the accounts of various Crown corporations and other instrumentalities.

Board of Broadcast Governors.—This Board, established under the provisions of the Broadcasting Act which was assented to on Sept. 6, 1958, is given authority to regulate radio and television broadcasting in Canada. The Board has authority to regulate the establishment and operation of both public and private broadcasting stations and networks of stations. Applications for licences to establish new broadcasting stations, for changes in the facilities of existing stations or for changes in the ownership or in the share structure of licensees are referred to the Board by the Minister of Transport for a recommendation before being dealt with. The Board has three full-time and twelve part-time members and reports to Parliament through the Secretary of State.

Board of Grain Commissioners.—Constituted in 1912 under the Canada Grain Act (RSC 1952, c. 25), the Board of Grain Commissioners for Canada provides general supervision over the physical handling of grain in Canada by licensing elevator operators, inspecting and weighing grain received at and shipped from terminal elevators, and other services. The Board, comprising a Chief Commissioner and two Commissioners, has authority to inquire into any matter relating to the grading and weighing of grain, deductions for dockage or shrinkage, deterioration of any grain during storage or treatment, unfair or discriminatory operation of a grain elevator, etc. The Board publishes its regulations in the *Canada Gazette* and reports to Parliament through the Minister of Agriculture.

Board of Transport Commissioners.—The powers of this Board, which was organized as the Board of Railway Commissioners in 1904, have been extended from time to time until today it has regulatory and judicial functions dealing with almost all aspects of railway activity including location, construction and operation of lines, rates and charges. It is also entrusted with the regulation of other transportation and communication agencies, including express companies, telegraph companies, telephone companies other than those provincially or municipally controlled, international bridges and tunnels and inland shipping. The Board reports to Parliament through the Minister of Transport.

* As at Apr. 30, 1965; any major changes taking place between that date and the time of going to press will be carried in an Appendix to this volume. Also, the accompanying organization chart is brought up to the latest possible date before going to press; see lower right-hand corner.

Bureau of Government Organization.—The Bureau was established by Order in Council dated Feb. 12, 1963, as a branch of the Privy Council Office (and designated as a "Department" for the purposes of the Civil Service Act and the Financial Administration Act), to facilitate the implementation of the recommendations of the Royal Commission on Government Organization. Effective May 15, 1964, the control and supervision of the Bureau was transferred to the Department of Finance. The responsible Minister is the Minister of Finance.

Canadian Government Printing Bureau.—The printing functions formerly provided by the Department of Public Printing and Stationery were transferred by Order in Council (PC 1963—1254) dated Aug. 21, 1963, to the Department of Defence Production. The latter Department, on Apr. 1, 1964, authorized the organization of the Canadian Government Printing Bureau as a distinct function under that Department, to be separated from the former Publications Branch and the Purchasing Stationery and Stores Branch of the Department of Public Printing and Stationery.

The Canadian Government Printing Bureau, under the direction of a General Manager, provides a variety of printing services, such as House of Commons Debates, Votes and Proceedings, Orders of the Day and other parliamentary papers for both Houses of Parliament, and other printing requirements of government departments and agencies. The main plant is located in Hull, Que.; smaller field units are located in the Ottawa area and in other major centres to handle the duplicating requirements of individual government departments.

Canadian Government Specifications Board.—This is an interdepartmental body composed of the Deputy Heads of eight Federal Government departments and agencies. The Board's secretariat constitutes the Specifications and Standards Branch of the Canadian Government Supply Service of the Department of Defence Production. It operates through the medium of committees in which government and industry co-operate on a voluntary basis. The Board prepares specifications and standards in commodity fields and for materials, processes and equipment required by government agencies, and arranges for necessary testing and research. An *Index of Specifications and Standards* is available on request to the CGSB Secretary, Department of Defence Production, Ottawa.

Canadian Pension Commission.—This Commission, established in 1933 by amendments to the Pension Act (RSC 1952, c. 207), replaced the Board of Pension Commissioners, the first organization created to deal solely with war pensions for service in Canada's Armed Forces. The Commission's main function is the administration of the Pension Act under which it adjudicates upon all claims for pension in respect of disability or death arising out of service in Canada's Armed Forces; and Parts I to X inclusive of the Civilian War Pensions and Allowances Act, which provide for the payment of pensions in respect of death or disability arising out of civilian service directly related to the prosecution of World War II. It also adjudicates on claims for pension under various other measures; authorizes and pays monetary grants accompanying certain gallantry awards bestowed on members of the Armed Forces; and administers various trust funds established by private individuals for the benefit of veterans and their dependants. The Commission consists of eight to twelve Commissioners and up to five *ad hoc* Commissioners appointed by the Governor in Council. Its chairman has the rank of a Deputy Head of a department and the Commission reports to Parliament through the Minister of Veterans Affairs.

Chief Electoral Office.—This Office was established in 1920 under the provisions of the Dominion Elections Act, now the Canada Elections Act (RSC 1960, c. 39, and amendments thereto), and is responsible for the conduct of all federal elections as well as the elections of members of the Northwest Territories Council and of the Yukon Territory Council. In addition, it conducts any vote taken under the Canada Temperance Act. The Chief Electoral Officer reports to Parliament through the Secretary of State.

Department of Citizenship and Immigration.—This Department was constituted in December 1949 (RSC 1952, c. 67) and came into existence on Jan. 18, 1950 under the Minister of Citizenship and Immigration. Most departmental work is carried on through four branches. The Canadian Citizenship Branch assists governmental and non-governmental agencies engaged or interested in facilitating the adjustment and integration of newcomers and in making Canadians conscious of their privileges and responsibilities as citizens. The Canadian Citizenship Registration Branch administers the Canadian Citizenship Act and is the custodian of all records under that Act and all Naturalization Acts previously in force. The Immigration Branch administers the Immigration Act and Regulations and is responsible for the selection, examination and movement of immigrants, the exclusion or deportation of undesirables and the settlement or establishment of immigrants in Canada. The activities of the Indian Affairs Branch include management of all Indian affairs. Its organization consists of a headquarters office at Ottawa, a regional supervisory staff, and 89 local agencies in the field.

The Central Mortgage and Housing Corporation reports to Parliament through the Minister of Citizenship and Immigration.

Civil Service Commission.—The Civil Service Commission of Canada dates from the Civil Service Act of 1908. Under this Act the Commission was given the responsibility of applying, wherever possible, the principle of appointment by merit in filling permanent positions within departmental headquarters at Ottawa, termed the "inside service". The Civil Service Act of

1918 extended the competitive system of appointments to cover the outside service and temporary appointments. It also gave the Commission other responsibilities in the field of personnel administration including responsibility for promotion, for classification of positions and for recommending rates of pay.

The Civil Service Act of 1961, which came into force on Apr. 1, 1962, has three main features. First, it preserves the independence of the Civil Service Commission and carries forward and strengthens all the fundamental principles of the merit system. Secondly, it clarifies the role of the Civil Service Commission in those other areas of personnel administration with which it is concerned but which do not bear directly upon the merit system. Thirdly, it confers on staff associations the right to be consulted on matters that have to do with remuneration and conditions of employment.

The Civil Service Commission is responsible only to Parliament and not to the executive government and reports to Parliament through the Secretary of State. It consists of three members, one of whom is chairman. Each member of the Commission is appointed by the Governor in Council for a term of ten years and has the rank and standing of a Deputy Minister. The Commission has a staff of more than 700 persons located in its headquarters at Ottawa and in its field offices at St. John's, Nfld., Halifax, N.S., Moncton and Saint John, N.B., Quebec and Montreal, Que., Ottawa, Toronto and London, Ont., Winnipeg, Man., Regina and Saskatoon, Sask., Edmonton and Calgary, Alta., and Vancouver and Victoria, B.C.

Department of Defence Production.—The Department of Defence Production was established in April 1951 by the Defence Production Act (SC 1951, c. 4—now the Defence Production Act, RSC 1952, c. 62, as amended by SC 1955, c. 52). Its antecedents were the Department of Munitions and Supply established in 1940 for the procurement of military supplies and its successor, in December of 1945, the Department of Reconstruction and Supply. In February 1947, the procurement functions of the Department of Reconstruction and Supply were transferred to the Department of Trade and Commerce and carried out through the Canadian Commercial Corporation. The Defence Production Act provides the Minister with exclusive authority to buy or otherwise acquire defence supplies required by the Department of National Defence. The Act also provides for the mobilization, conservation and co-ordination of Canadian economic and industrial facilities; for incorporation of companies; for stock-piling essential materials; and for the provision of capital assistance.

As the Department has responsibility for encouraging the development and production of defence equipment in Canada, it is also concerned with establishing arrangements with the United States and other NATO and allied countries for bilateral and multilateral collaboration in the fields of defence research, development and production. At the same time it endeavours to increase participation of Canadian industry in the defence production requirements of these countries.

As a result of a Cabinet decision, the Department has been designated as the central purchasing agency for all civil departments and agencies, other than the commercially oriented Crown corporations.

The main operating branches of the Department are: Aircraft, Chemicals, Apparel and Textiles, Electrical and Electronics, Food Products, Machinery, Materials, Mechanical Transport, Shipbuilding and Heavy Equipment, and Wood Products. The Regional Purchasing Branch has 14 regional offices located throughout Canada for local or urgent procurement. Procurement offices are also located at London, England, Washington, U.S.A., Paris, France, and Koblenz, Germany. In addition, the Department contains the International Programs Branch which directs the Departmental defence export activities, including the Canada-U.S. Defence Development and Production Sharing Program and Canadian participation in the NATO Armaments Committee.

The following staff and support branches service both the Departments of Defence Production and Industry—Comptroller's, Financial Adviser's, General Services, Legal, Management Control, Management Services and Personnel. The Emergency Supply Planning Branch is responsible for planning the arrangements necessary to permit a War Supplies Agency to be brought into immediate existence in the event of a nuclear war. Branches that have been formed to carry out the responsibilities of the new integrated Supply Service are: Cataloguing, Quality Assurance, Specifications and Standards, Traffic Management, Warehousing and Distribution and Regional Purchasing. The Canadian Government Printing Bureau is responsible to the Department of Defence Production.

Crown corporations and agencies reporting to Parliament through the Minister of Industry in his capacity as Minister of the Department of Defence Production are: Canadian Arsenals Limited, Canadian Commercial Corporation, Canadian Government Specifications Board, Crown Assets Disposal Corporation, Emergency Measures Organization, and Polymer Corporation Limited.

Dominion Bureau of Statistics.—The Dominion Bureau of Statistics was set up by statute in 1918 as a central statistical department for Canada (SC 1918, c. 43). In 1948 this statute, which had been consolidated as the Statistics Act (RSC 1927, c. 190), was repealed and replaced by the Statistics Act (RSC 1952, c. 257); it was amended by SC 1952-53, c. 18, assented to Mar. 31, 1953.

The function of the Dominion Bureau of Statistics is to compile, analyse and publish statistical information relative to the commercial, industrial, financial, social and general condition of the people and to conduct regularly a census of population and agriculture of Canada as required under the Act.

The Bureau is a major publication agency of the Federal Government; its reports cover all aspects of the national economy. The administrative head of the Bureau is the Dominion Statistician who has the rank of a Deputy Head of a department and reports to Parliament through the Minister of Trade and Commerce.

Emergency Measures Organization.—This organization was established in June 1957 for the purpose of co-ordinating civil emergency planning at the federal level. On Sept. 1, 1959, the Federal Government, in revising the assignments in the field of civil emergency planning, gave the Departments of National Defence, National Health and Welfare, and Justice responsibility for certain specific civil defence functions, and the Emergency Measures Organization responsibility for overall co-ordination of all aspects of civil emergency planning, assistance to provincial governments and municipalities, and general liaison with other countries. On July 1, 1963, the Organization was given the further responsibility of directing and administering the Civil Defence College at Arran, Ont., a responsibility previously discharged by the Department of National Health and Welfare. The organization reports to Parliament through the Minister of Industry in his capacity as Minister of Defence Production.

Department of External Affairs.—This Department was established in 1909 by "An Act to create a Department of External Affairs" (RSC 1952, c. 68). Its main function is the protection and advancement of Canadian interests abroad. The Minister responsible for the Department is the Secretary of State for External Affairs. The senior permanent officer (Deputy Minister) of the Department, the Under-Secretary of State for External Affairs, is assisted by a Deputy Under-Secretary and by four Assistant Under-Secretaries and is advised by the officers in charge of the various divisions. The divisional heads are each responsible for a part of the work of the Department and they are assisted by Foreign Service Officers, administrative officers and an administrative staff. Officers serving abroad are formally designated as High Commissioners, Ambassadors, Ministers, Counsellors, First Secretaries, Second Secretaries, Third Secretaries and Attachés at diplomatic posts and Consuls General, Consuls and Vice-Consuls at consular posts. There are 78 diplomatic, consular and other missions maintained abroad by the Department. In 34 additional countries, Canada is represented by non-resident Ambassadors or High Commissioners.

The work of the Department at Ottawa is performed by 25 divisions and three units. The divisions may be grouped into three categories—area, functional and administrative. There are six area divisions—African and Middle Eastern, Commonwealth, European, Far Eastern, Latin American and United States; thirteen functional divisions—Communications, Consular, Defence Liaison (1), Defence Liaison (2), Disarmament, Economic, Historical, Information, Legal, Passport, Press and Liaison, Protocol, and United Nations; and six administrative divisions—Administrative Services, Finance, Personnel Operations, Personnel Services, Registry, and Supplies and Properties. The three units are the Inspection Service, the Organization and Methods Unit and the Administrative Improvement Unit.

The International Joint Commission reports to the Secretary of State for External Affairs of Canada as well as to the Secretary of State of the United States.

Department of Finance.—This Department was created by Act of Parliament in 1869 and now operates under the Financial Administration Act (RSC 1952, c. 116). The Department is responsible for the financial administration of Canada including the raising of money required for the various governmental activities by way of taxation or borrowing. The Comptroller of the Treasury, an officer of the Department, is responsible for all government disbursements. The work of the Department is organized into the following divisions: Tax Policy, Federal-Provincial-Municipal Relations, Social Security and Pensions, Economic Analysis, Government Finance and Government Guaranteed Loans, Tariffs, International Economic Relations, Resources and Development, International Programmes. The Treasury Board Staff is a branch of the Department and the Royal Canadian Mint also is a branch. The Inspector General of Banks, the Tariff Board, the Municipal Development and Loan Board, the Bank of Canada and the Bureau of Government Organization report to Parliament through the Minister of Finance.

Department of Fisheries.—The Department of Fisheries was first organized under a Minister of Fisheries in 1930. Prior to that date the federal fisheries services were maintained by the former Department of Marine and Fisheries, established in 1868. The provinces, under various arrangements, have certain administrative responsibilities in the fisheries but the legislative authority for the regulation of coastal and freshwater fisheries is with the federal Department of Fisheries.

The work of the Department includes: conservation and development of the fisheries through the enforcement of fishing regulations, the operation of fish culture establishments, management and improvement of spawning streams and control of predators; inspection of fish products for quality control and the encouragement of industrial development; promotion of the greatest utilization of fishery products and a proper public understanding of the resource and the industry. The Department administers the Fishermen's Indemnity Plan to assist fishermen in the event of loss or serious damage to their fishing vessels or lobster traps.

Agencies connected with the Department are the Fisheries Prices Support Board and the Fisheries Research Board of Canada. The Department is represented on the following international commissions: Pacific Salmon Fisheries, Pacific Halibut, the Northwest Atlantic Fisheries, North Pacific Fisheries, Whaling, Great Lakes Fishery, and North Pacific Fur Seal.

Fisheries Research Board.—The Fisheries Research Board operates under the Fisheries Research Board Act of 1937 (amended in 1947 and 1952-53). It has been active as a fisheries research body since 1898, first as the Board of Management of the Canadian Marine Biological Station and later (1912) as the Biological Board of Canada.

The Board operates under the Minister of Fisheries and membership consists of a full-time chairman and not more than 18 other members. The majority of Board members are university scientists, and other members are representative of the fishing industry and the Department of Fisheries.

The Board operates five biological stations across Canada, and three technological stations with two technological application units and two oceanographic groups. It serves as the scientific arm of the Department of Fisheries and its principal objective is to increase the scope and value of Canadian fisheries through scientific research.

Department of Forestry.—The Department was established in October 1960 for the purpose of bringing under one Ministry the conduct of comprehensive programs of research relating to forest management, silviculture, protection against fire, insects and disease and the improvement in the standards of wood utilization and development of forest products. The Department also carries out economic studies of the forest resources and on the economic position of the forest industries. Financial assistance is offered to the provinces under agreements authorized by the Minister of Forestry to assist progress toward meeting specific forestry needs. It conducts forest surveys and provides technical advice and assistance to other agencies of the Federal Government responsible for the administration of forest lands and co-operates with international organizations concerned with forestry and in which Canada maintains membership. The Department acts as co-ordinator for the seven-agency Technical Committee for Watershed Research of the Eastern Rockies Forest Conservation Board.

By Order in Council of Mar. 5, 1964, the responsibilities of the Minister of Forestry were expanded to include the powers, duties or functions formerly exercised by the Minister of Agriculture respecting certain rural development programs under the Agricultural Rehabilitation and Development Act (ARDA), the Maritime Marshland Rehabilitation Act, and the administration of the program of freight assistance and grain storage costs on western feed grains.

The ARDA program joins with existing programs of resource management and economic development to provide public assistance to help meet problems of physical, economic and social adjustment in rural areas. It also includes a program of soil and water conservation aimed at increasing the efficient productivity of basic rural resources over the long run. Operational liaison with the four western provinces is the responsibility of the Prairie Farm Rehabilitation Administration (Department of Agriculture) and the Maritime Marshland Rehabilitation Administration (Department of Forestry) carries a similar responsibility for the Atlantic Provinces.

Through a central and developing information program, the Department of Forestry seeks to promote greater public understanding of the value of the forest resources and, in co-operation with the provinces, of the work and purpose of the ARDA program.

Each of the two major elements of the Department—forestry and rural development—is headed by an Assistant Deputy Minister.

Department of Industry.—Under the Department of Industry Act (SC 1963, c. 3), the Minister of Industry is responsible for promoting the establishment, growth, efficiency and improvement of manufacturing industries in Canada through the development and implementation of programs to assist manufacturers to adjust to changing market conditions, to help them develop new lines of production and enter new markets, and to promote greater industrial research and development as well as good design within Canadian industry.

The Department of Industry is also responsible for undertaking research and investigations on an area or regional basis and preparing programs of development for designated areas of high unemployment and slow economic growth. As a part of these programs, various Federal Government incentive measures are administered.

The Department is organized into ten industry branches: Aircraft, Chemicals, Apparel and Textiles, Electrical and Electronics, Food Products, Machinery, Materials, Mechanical Transport, Shipbuilding and Heavy Equipment, and Wood Products (see also Department of Defence Production, p. 120). In addition, the Area Development Agency carries out the work associated with regional programs and the National Design Branch, in co-operation with the National Design Council, undertakes programs to promote and encourage good design in Canadian products.

The Program Advisory Group consists of a small number of officers experienced in economics, commercial policy, industrial research and development. Their function is to advise the Department in these areas and to co-ordinate departmental programs related to them.

Department of Insurance.—The Minister of Finance is responsible for the Department of Insurance which originated in 1875 as a branch of the Department of Finance but was constituted a separate Department in 1910. It is authorized and governed by the Department of Insurance Act (RSC 1952, c. 70). Under the Superintendent of Insurance, who is the Deputy Head, the Department administers the statutes of Canada applicable to: insurance, loan and trust companies incorporated by the Parliament of Canada; provincially incorporated insurance companies registered with the Department; British and foreign insurance companies operating in Canada; small loans companies and money-lenders; co-operative credit societies registered under the Co-operative Credit Associations Act; and civil service insurance.

Under the relevant provincial statutes, the Department examines trust companies incorporated in the Provinces of Manitoba and New Brunswick and loan and trust companies incorporated in the Province of Nova Scotia.

International Joint Commission.—This Commission was established under a Britain-United States treaty signed Jan. 11, 1909 and ratified by Canada in 1911. The Commission, composed of six members (three appointed by the President of the United States and three by the Government of Canada), is governed by five specific Articles of the Boundary Waters Treaty of 1909. The Commission's approval is required for any use, obstruction or diversion of boundary waters affecting the natural level or flow of boundary waters in the other country; and for any works in waters flowing from boundary waters or below the boundary in rivers flowing across the boundary which raise the natural level of waters on the other side of the boundary.

Problems arising along the common frontier are also referred to the Commission by either country for examination and report, such report to contain appropriate conclusions and recommendations. In addition, questions or matters of difference between the two countries may be referred to the Commission for decision, provided both countries consent.

The Commission reports to the Secretary of State for External Affairs of Canada and to the Secretary of State of the United States.

Department of Justice.—This Department, established by SC 1868, c. 39, now operates under authority of the Department of Justice Act (RSC 1952, c. 71). It provides legal services to the Government and various government departments including preparing and settling government legislation, settling instruments issued under the Great Seal of Canada, regulating and conducting litigation for or against the Crown, superintending the acquisition of property and prosecutions under federal legislation other than the Criminal Code, administering federal statutes dealing with legal matters and providing administrative services for the Supreme Court of Canada and the Exchequer Court. The Department also superintends the penitentiaries and administers the prison system of Canada, and administers the provisions of Canadian anti-combine legislation.

The Commissioner of the Royal Canadian Mounted Police operates under the direction of the Minister of Justice who also reports to Parliament for the National Parole Board and the Restrictive Trade Practices Commission.

Department of Labour.—The Department of Labour was established in 1900 by Act of Parliament (SC 1900, c. 24) and now operates under authority of the Department of Labour Act (RSC 1952, c. 72). The Department administers, under the Minister of Labour, legislation dealing with: industrial relations, investigation of disputes, etc.; fair employment practices; the regulation of fair wages and hours of labour; reinstatement in civil employment; female employee equal pay; government annuities; government employee compensation; merchant seamen compensation; technical and vocational training assistance; vocational rehabilitation of disabled persons; hours of work, minimum wages, annual vacations and holidays with pay; and the National Employment Service. It promotes joint consultation in industry through labour-management committees; organizes manpower utilization programs, e.g., farm labour; and operates a Women's Bureau. The Department publishes the *Labour Gazette* and other publications, as well as general information on labour-management, employment, manpower and related subjects.

The National Technical and Vocational Training Advisory Council and the National Advisory Council on the Rehabilitation of Disabled Persons act in an advisory capacity to the Minister of Labour, and the Merchant Seamen Compensation Board reports to the Minister of Labour. The Department is the official liaison agency between the Canadian Government and the International Labour Organization. The Unemployment Insurance Commission reports to Parliament through the Minister of Labour. The Canada Labour Relations Board administers certain provisions of the Industrial Relations and Disputes Investigation Act.

Library of Parliament.—The Library of Parliament as such was established in 1871 (SC 1871, c. 21) although it existed earlier. It currently functions under RSC 1952, c. 166 and SC 1955, c. 35. The Library of Parliament keeps all books, maps and other articles that are in the joint possession of the Senate and the House of Commons. The Parliamentary Librarian is also responsible for the House of Commons Reading Room. Persons entitled to borrow books from the Library of Parliament are the Governor General, Members of the Privy Council, Members of the Senate and the House of Commons, Officers of the two Houses, Justices of the Supreme Court of Canada and the Exchequer Court, and members of the Press Gallery. In addition, books are lent

to other libraries and government agencies and reference service is given to scholars. The Parliamentary Librarian has the rank of a Deputy Head of a department and is responsible for the control and management of the Library under the Speaker of the Senate and the Speaker of the House of Commons assisted by a Joint Committee appointed by the two Houses.

Department of Mines and Technical Surveys.—This Department was created by an Act of Parliament (SC 1949, c. 17) which received Royal Assent on Dec. 10, 1949. Its establishment resulted from the reorganization of certain former departments. A primary function of the Department is to provide technological assistance in the development of Canada's mineral resources through investigations and research in the fields of geology, mineral dressing and metallurgy. The Department establishes the framework of surveys throughout the country that provides control for all surveying and mapping in Canada. It produces the base maps used in the development of Canada's natural resources, conducts all the charting of Canada's coastal and inland waters, and issues official sailing directions and Canadian sea and air navigation charts. To this has been added recently the study of coastal waters and of the country's continental shelf as well as of the deep ocean for defence and resource assessment purposes. The Department is divided into six branches: the Surveys and Mapping Branch, the Marine Sciences Branch, the Geological Survey of Canada, the Mines Branch, the Observatories Branch, and the Geographical Branch. The Mineral Resources Division, a unit of head office, gives its whole attention to matters concerned with the economics of mineral resources development.

The Department administers the Explosives Act which regulates the manufacture, testing, sale, storage and importation of explosives, and the Emergency Gold Mining Assistance Act which provides cost-aid to the Canadian gold mining industry.

Boards and Commissions are: the Canadian Permanent Committee on Geographical Names; the Board of Examiners for Dominion Land Surveyors; the International Boundary Commission; and the Interprovincial Boundary Commissions. The Minister of Mines and Technical Surveys reports to Parliament for the Dominion Coal Board.

Department of National Defence.—The Department of National Defence and the Canadian Forces operate under the National Defence Act (RSC 1952, c. 184). The Canadian Forces are administered by the Minister of National Defence and the Associate Minister of National Defence. As of Aug. 1, 1964, the positions of Chairman, Chiefs of Staff Committee, Chief of the Naval Staff, Chief of the General Staff and Chief of the Air Staff were abolished and their powers vested in a single Chief of the Defence Staff. On that date, Canadian Forces Headquarters replaced the separate Service headquarters and the process of integrating its various functions commenced immediately. This was the first stage in the announced plan to integrate the three Services.

The Defence Research Board, created in 1947 to carry out research relating to national defence and to advise the Minister on all relevant matters of a scientific or technical nature, functions under the National Defence Act. The Crown corporation, Defence Construction (1951) Limited, reports to Parliament through the Minister of National Defence.

National Energy Board.—This Board was established under the National Energy Board Act, 1959 for the broad purpose of assuring the best use of energy resources in Canada. The Board, composed of five members, is responsible for the regulation of the construction and operation of the oil and gas pipelines that are under the jurisdiction of the Parliament of Canada, the tolls charged for transmission by oil and gas pipelines, the export and import of gas and the export of electric power, and the construction of the lines over which such power is transmitted. The Board is also required to study and keep under review all matters relating to energy under the jurisdiction of the Parliament of Canada and to recommend such measures as it considers necessary and advisable on the subject. The Board reports to Parliament through the Minister of Trade and Commerce.

National Film Board.—The National Film Board, established in 1939, operates under the National Film Act (RSC 1952, c. 185) which provides for a Board of Governors of nine members—a Government Film Commissioner, appointed by the Governor in Council, who is Chairman of the Board, three members from the public service of Canada and five members from outside the public service. The Board reports to Parliament through the Secretary of State. The Board is responsible for advising the Governor in Council on film activities and is authorized to produce and distribute films in the national interest and, in particular, films 'designed to interpret Canada to Canadians and to other nations'.

Department of National Health and Welfare.—This Department was established in October 1944 under authority of the Department of National Health and Welfare Act (RSC 1952, c. 74). It was originally formed as the Department of Health in 1919 and later became part of the Department of Pensions and National Health. That Department was replaced in 1944 by the Department of National Health and Welfare and the Department of Veterans Affairs.

The Department, headed by the Minister of National Health and Welfare, is composed of three branches—Administration, Health and Welfare—and is administered by two Deputy Ministers.

The Department has charge of all matters relating to the promotion or preservation of the health, social security and social welfare of the people of Canada over which the Federal Parliament has jurisdiction. It administers the Acts listed in Sect. 4, p. 140, and is also responsible for: the administration of the National Health Program under which grants are made available to the provinces for the development and extension of health services; the federal aspects of emergency health and welfare services; health and safety in the peaceful uses of atomic energy and other sources of radiation affecting the population; the provision of health, medical and hospital services to Indians and Eskimos and to other elements of the population in the Yukon and Northwest Territories; the provision of assistance and consultative services to the provinces upon request on blindness control, child and maternal health, mental health, dental health, nursing, medical rehabilitation, nutrition and hospital design; the inspection and medical care of immigrants and seamen and the administration of marine hospitals; the supervision of public health facilities on railway, water and other forms of transportation; the enforcement of regulations of the International Joint Commission relating to public health; the promotion and conservation of the health of civil servants and other government employees; the collection, publication and distribution, subject to the provisions of the Statistics Act, of information relating to public health, improved sanitation and social and industrial conditions affecting the health of Canadians. It co-ordinates and assists international welfare activities in which Canada is engaged and administers a system of grants to the provinces for professional welfare training, welfare research and general welfare services.

National Library.—The National Library came formally into existence on Jan. 1, 1953, with the proclamation of the National Library Act (RSC 1952, c. 330). It publishes *Canadiana*, a monthly catalogue of new publications relating to Canada, with an annual cumulation. The Library also publishes other bibliographies. Its Reference Division maintains the *National Union Catalogue*, which embodies the author catalogues of the major libraries in the ten provinces and is thus a key to the book collections of the whole country. Its book collection is growing steadily and at the end of 1964 consisted of over 250,000 volumes. The National Librarian reports to Parliament through the Secretary of State.

National Parole Board.—The establishment of the National Parole Board, which was formed in January 1959, is authorized by the Parole Act (SC 1958, c. 38) by which it is given absolute jurisdiction over all matters of parole. It is composed of a chairman and three members appointed by Order in Council for a ten-year period. The Board reports to Parliament through the Minister of Justice.

Department of National Revenue.—From Confederation until May 1918, customs and inland revenue Acts were administered by separate departments; after that date they were amalgamated under one Minister as the Department of Customs and Inland Revenue. In 1921 the name was changed to the Department of Customs and Excise. In April 1924 collection of income taxes was placed under the Minister of Customs and Excise and, under the Department of National Revenue Act, 1927, the Department became known as the Department of National Revenue.

The Customs and Excise Division of the Department is responsible for the assessment and collection of customs and excise duties as well as of sales and excise taxes. The Taxation Division is responsible for the assessment and collection of income taxes, gift tax, old age security tax, Part I of the Canada pension plan, and estate taxes for Canada and all provinces, except Quebec, through its 29 district taxation offices and its Taxation Data Centre.

The Minister of National Revenue is responsible to Parliament for the Tax Appeal Board.

Department of Northern Affairs and National Resources.—The Department of Northern Affairs and National Resources was established in December 1953, superseding the Department of Resources and Development. In addition to the Financial and Management Services the Department is divided into four branches: the Natural and Historic Resources Branch, which administers the National Parks and National Historic Parks of Canada, National Historic Sites, and wildlife matters coming within the jurisdiction of the Federal Government; the Water Resources Branch, which is responsible for the investigation of water power resources, for the administration of federal assistance to the provinces under the Canada Water Conservation Assistance Act and for federal interest in certain joint federal-provincial construction projects; the Northern Administration Branch, which is responsible for the administration of various federal Acts, territorial ordinances and regulations pertaining to the government of the Northwest Territories, for the conduct of certain business arising from the general administration of the Yukon Territory, for the administration of natural resources in those Territories, and for Eskimo affairs; and the Resources Development Branch, which is responsible for the national resources areas of the Department's work as well as for certain other lands and mineral rights vested in the Crown in the right of Canada.

The Minister of Northern Affairs and National Resources is also responsible to Parliament for the Northern Canada Power Commission and the National Battlefields Commission. The Historic Sites and Monuments Board of Canada, an honorary body of recognized historians representing the various provinces, and the Advisory Committees on Northern Development and Water Use Policy, act in an advisory capacity to the Minister in their respective fields. The Deputy Minister is Chairman of the Northern Canada Power Commission.

Office of the Representation Commissioner.—This Office was established in 1963 under the provisions of the Representation Commissioner Act (SC 1963, c. 40) and is responsible for preparing maps showing the distribution of population in each province and setting out alternative proposals respecting the boundaries of electoral districts in each province. In addition, it is required to make a review and study methods of registration of electors and absentee voting used in elections of other countries; it reports to Parliament through the Secretary of State.

Post Office Department.—Administration and operation of the Canada Post Office, by virtue of the Post Office Act (RSC 1952, c. 212) and under the Postmaster General, includes all phases of postal activity, personnel, mail handling, transportation of mails by land, water, rail and air and the direction and control of financial services including the operation of money order and savings bank business.

Privy Council Office.—For administrative purposes, the Privy Council Office is regarded as a Department of Government under the Prime Minister. The Clerk of the Privy Council, under whose direction its functions are carried out, is considered as a Deputy Head and takes precedence among the chief officers of the Public Service. The authority of the Privy Council Office is to be found in Sects. 11 and 130 of the British North America Act, 1867, which constituted a Council to aid and advise in the government of Canada to be styled the Queen's Privy Council for Canada. In 1940, upon the wartime development of cabinet committees and the consequent need for orderly secretarial procedures such as agenda, explanatory memoranda and minutes, the Principal Secretary in the Prime Minister's Office was designated Clerk of the Privy Council and First Secretary to the Cabinet. Since 1946, the Privy Council Office has been further reorganized, developed and enlarged and certain administrative functions of the Privy Council Office and the Prime Minister's Office have been closely integrated in the interests of efficiency and economy.

The organization of the Privy Council Office at present consists primarily of the Privy Council Section concerned with the examination of submissions to the Governor in Council, preparation of draft orders and regulations, circulation and filing of approved orders, and the duties of editing, registering and publishing the federal statutory regulations in Part II of the *Canada Gazette*; the Cabinet Section dealing with secretarial work for the Cabinet and for Cabinet committees and interdepartmental committees, such as the preparation and circulation of agenda and necessary documents to Ministers and recording and circulating decisions, liaison with departments and agencies of government, and the preparation of material for the Prime Minister; the Scientific Secretariat; the Special Planning Secretariat; and the Office of the Prime Minister organized as a Secretariat with officers responsible for general secretarial duties, the drafting of letters, the arrangement of appointments to interview the Prime Minister or for his public appearances or for the release of his statements on matters of public interest, and assisting the Prime Minister in his parliamentary duties.

Public Archives.—The Public Archives was founded in 1872 and is administered under the Public Archives Act (RSC 1952, c. 222) by the Dominion Archivist who has the rank of a Deputy Minister and reports to Parliament through the Secretary of State. Its purpose is to assemble and make available to the public a comprehensive collection of historical source material relating to the history of Canada. Major emphasis is placed on official records of the Government and the personal papers of political leaders and other prominent figures. These are supplemented by copies of many records in the British and French archives that relate to Canada, a fine map collection, a historical library, and many prints, paintings and photographs. The Archives operates a large Records Centre which provides accommodation for departmental records that are seldom used and also serves as a sorting centre, preserving papers of long-term interest from obsolete files and marking useless material for destruction. The Government's Central Microfilm Unit is housed in the Records Centre.

Under the terms of the Laurier House Act (RSC 1952, c. 163) the Public Archives is responsible for the administration of Laurier House as a museum and study centre.

Department of Public Works.—The Department was constituted in 1867 and operates under the legislative authority of the Public Works Act and other Acts of Parliament. It is responsible for the management and direction of the public works of Canada and, except as specifically provided in other Acts, attends to the construction and maintenance of public buildings, wharves, piers, roads and bridges and the undertaking of dredging and navigable waters protection work. Federal Government interest in the Trans-Canada Highway and the Northwest Highway System is also handled by the Department. The Department maintains district offices at key points across the country. The Branches and Divisions of the Department are: Harbours and Rivers Engineering, Building Construction, Development Engineering, Property and Building Management, Administrative Services, Economic Studies, Financial Services, Fire Prevention, Information Services, Legal Services and Personnel.

The Minister of Public Works is also responsible to Parliament for the National Capital Commission.

Royal Canadian Mounted Police.—The Royal Canadian Mounted Police, a civil force maintained by the Federal Government, was organized in 1873 as the North West Mounted Police. It now operates under the Royal Canadian Mounted Police Act, 1959 and is responsible for enforcing

federal laws throughout Canada. By agreement with certain provincial governments, it is also responsible for enforcing provincial laws within those provinces and for policing many district municipalities, cities and towns. The Force is controlled and administered by the Minister of Justice.

Department of the Secretary of State.—The Secretary of State and Registrar General of Canada is the official medium of communication with the Throne through the Governor General, and is the custodian of the Great Seal of Canada and of the Privy Seal of the Governor General. He is responsible for the preparation and tabling of returns in Parliament. He is also the Custodian of Enemy Property.

The Department administers affairs relating to patents of invention, trade marks, industrial designs, timber marking, copyright, companies, boards of trade, the registration of trade unions, public officers, public documents, governmental and parliamentary translations, and the National Museum.

The Secretary of State has certain responsibilities with respect to civilian decorations, precedence and ceremonial. The Committee on the use of Parliament Hill, the Canadian Centre for the Performing Arts, the National Library and the Public Archives falls within his purview. He is the Minister responsible for the Centennial Commission and the office of the Queen's Printer (Publisher) and is the spokesman in Cabinet and Parliament for the Board of Broadcast Governors, the Canada Council, the Canadian Broadcasting Corporation, the Chief Electoral Officer, the Civil Service Commission, the Economic Council of Canada, the National Film Board, the National Gallery, the National Library, the Public Archives and the Representation Commissioner.

Tariff Board.—Constituted in 1931, the Board derives its duties and powers from three statutes: the Tariff Board Act (RSC 1952, c. 261, as amended); the Customs Act (RSC 1952, c. 58, as amended); and the Excise Tax Act (RSC 1952, c. 100, as amended).

Under the Tariff Board Act, the Board makes inquiry into and reports upon any matter in relation to goods that, if brought into Canada, are subject to or exempt from duties of customs or excise taxes. Reports of the Board are tabled in Parliament by the Minister of Finance. It is also the duty of the Board to hold an inquiry under Sect. 14 of the Customs Tariff and to inquire into any other matter in relation to the trade and commerce of Canada that the Governor in Council sees fit to refer to the Board for inquiry and report.

Under the provisions of the Customs Act and the Excise Tax Act, the Tariff Board acts as a court to hear appeals from rulings of the Department of National Revenue, Customs and Excise Division, in respect of excise taxes, tariff classification, value for duty, and drawback of customs duties. Declarations of the Board on appeals on questions of fact are final and conclusive but the Acts contain provisions for appeal on questions of law to the Exchequer Court of Canada.

Tax Appeal Board.—The Tax Appeal Board (created in 1946 as the Income Tax Appeal Board) now operates under the Income Tax Act (RSC 1952, c. 148 as amended). The Board is declared by statute to be a court of record and has jurisdiction to hear and determine appeals by taxpayers against their assessment under the Income Tax Act and also appeals under the Estate Tax Act. An appeal lies from the Board to the Exchequer Court of Canada and a further appeal from that court to the Supreme Court of Canada. The Board consists of a chairman, an assistant chairman and four other members. Its offices are located at Ottawa and it hears appeals at the principal centres throughout Canada approximately twice a year and at the main centres, such as Montreal and Toronto, six times a year. The Board is under the jurisdiction of the Minister of National Revenue but is independent of the Department of National Revenue.

Department of Trade and Commerce.—The Department of Trade and Commerce has been expanding its services annually since becoming functional through an Order in Council dated Dec. 5, 1892, almost five years after establishment was approved by an Act of Parliament of Jan. 23, 1887. Today the Department has 194 Trade Commissioners on its staff serving at headquarters and at 66 posts abroad, a figure which includes Assistant Trade Commissioners and agricultural, fisheries and timber specialists. Career trade commissioners are known as Minister (Commercial), Commercial Counsellor or Commercial Secretary and hold diplomatic status if they are members of a mission maintained by the Department of External Affairs.

The Department comprises three principal services: Trade Policy governs trade relations; External Trade Promotion is responsible for the Canadian Government Travel Bureau, the Canadian Government Exhibition Commission, the Trade Commissioner Service, Trade Publicity and Trade Fairs and Missions; and Commodities and Industries includes the Commodities, Agriculture and Fisheries, and Trade Services branches.

Boards and commissions, Crown corporations and agencies that report to Parliament through the Minister of Trade and Commerce include the Canadian Wheat Board, the Dominion Bureau of Statistics, Eldorado Aviation Ltd., Eldorado Mining and Refining Co. Ltd., the Export Credits Insurance Corporation, the National Energy Board, Northern Transportation Co. Ltd., the Canadian Corporation for the 1967 World Exhibition, and the Canadian Government Participation, 1967 Exhibition.

Department of Transport.—The Department was created on Nov. 2, 1936 from the former Departments of Marine and of Railways and Canals, and the Civil Aviation Branch of the Department of National Defence (RSC 1952, c. 79).

The work of the Department consists of two main Services—Marine and Air. Marine Service operations include aids to navigation, nautical and pilotage services, marine agencies, secondary canals, steamship inspection, the Canadian Coast Guard, and direct supervision over 300 public harbours; 11 other harbours come under supervision of the Department but are administered by commissions. Air Services cover the operation of the Telecommunications and Electronics, Civil Aviation, and Meteorological Branches. The work of the Telecommunications and Electronics Branch includes the administration of national and international radio laws, regulations and agreements; it is also responsible for the construction, installation, maintenance and operation of aeronautical, marine and meteorological radio-communication stations and of radio and electronics aids to marine and air navigation.

The Minister of Transport is responsible to Parliament for the following boards, commissions and Crown companies: Air Canada, the Air Transport Board, the Board of Transport Commissioners, the Canadian Maritime Commission, the National Harbours Board, the St. Lawrence Seaway Authority, the Canadian Overseas Telecommunication Corporation, the Canadian National Railways, and the Atlantic Development Board.

Treasury Board.—The Treasury Board was first established by Order in Council PC3 of July 2, 1867 and was made statutory in 1869. Its powers and duties are now governed by the Financial Administration Act (RSC 1952, c. 116 as amended). Serving as a committee of the Queen's Privy Council for Canada and consisting of the Minister of Finance as Chairman and five other members of the Privy Council, it deals with all matters relating to finance, revenues, estimates, expenditures and financial commitments, accounts and personnel establishments referred to the Board by the Governor in Council or on which the Board considers it necessary to act under the Financial Administration Act or any other Act. The practice of having a Board of Ministers co-ordinating financial measures and reviewing constantly the Government's spending program is unique.

The administrative staff of the Treasury Board constitutes a main division of the Department of Finance and is directed by an Assistant Deputy Minister of Finance named to be the Secretary of the Treasury Board.

Department of Veterans Affairs.—This Department, established in 1944 (RSC 1952, c. 80), is concerned exclusively with the welfare of veterans and with the dependants of veterans and of those who died on active service. The Department provides treatment services (hospital, medical, dental and prosthetic), welfare services, education assistance, life insurance, and land settlement and home construction assistance. The Veterans' Bureau assists veterans in the preparation and presentation of pension claims.

The Canadian Pension Commission established by the Pension Act (RSC 1952, c. 207), and the War Veterans Allowance Board established by the War Veterans Allowance Act (RSC 1952, c. 340) also report to Parliament through the Minister of Veterans Affairs.

The Department has treatment institutions and facilities in a number of urban centres. It also maintains, in large cities across Canada, administrative offices, which are shared with the Canadian Pension Commission and the War Veterans Allowance Board, and an office in London, England.

War Veterans Allowance Board.—This Board, established under the authority of the War Veterans Allowance Act, 1930 (RSC 1952, c. 340 as amended), is a statutory body responsible to the Minister of Veterans Affairs for the administration of the Act and for the administration of Part XI of the Civilian War Pensions and Allowances Act relating to certain groups of civilians who performed meritorious service in either World War I or II. It consists of three to ten members (three to five permanent, up to three temporary, and up to two additional without pay) appointed by the Governor in Council. Its functions include the responsibility of ensuring that all 19 District Authorities located in various regions throughout Canada interpret the legislation in a fair, reasonable and equitable manner. It is also an appeal body and may consider an appeal of an appellant against the decision of a District Authority.

Section 3.—Crown Corporations

The Crown corporation form of public enterprise is not a new type of organization in Canada but in recent years, as the work of government has become more complex, greater reliance has been placed on it as the appropriate instrument for administering and managing many public services in which business enterprise and public accountability must be combined.

The use of the corporate device to harmonize public responsibility in the development of economic resources and the provision of public services with the pursuit of commercial

and industrial objectives has led to the adoption of many different forms and formulas of management. The most usual practice has been to set up a corporation under the provisions of a special Act of Parliament which defines its purposes and sets forth its powers and responsibilities. However, during World War II the Minister of Munitions and Supply was authorized to procure the incorporation of companies under the federal Companies Act, 1934, or under any provincial Companies Act to which he might delegate any of the powers conferred on him under the Department of Munitions and Supply Act or any Order in Council. Under this legislation about 28 companies were created to serve a wide variety of purposes; most of these companies have since been wound up.

Following the successful experience during the war years in relying on the Companies Act for the establishment of Crown companies, similar incorporating powers were granted by an amendment to the Research Council Act and have been incorporated in the Atomic Energy Control and the Defence Production Acts.

In 1946 the Government Companies Operation Act was passed to regulate the operation of companies formed under the Companies Act. However, it was applicable only to a relatively small number of companies and, in order to establish a more uniform system of financial and budgetary control and of accounting, auditing and reporting for Crown corporations generally, Part VIII of the Financial Administration Act was enacted in 1951 and brought into operation by proclamation on Oct. 1, 1952. Upon its enactment the financial provisions of the Government Companies Operation Act were repealed.

One of the more interesting features of the later legislation is the attempt that has been made to define and classify Crown corporations.* The Act defines a Crown corporation as a corporation that is ultimately accountable, through a Minister, to Parliament for the conduct of its affairs and establishes three classes of corporation—departmental, agency and proprietary.

Departmental Corporations.—A departmental corporation is defined as a Crown corporation that is a servant or agent of Her Majesty in right of Canada and is responsible for administrative, supervisory or regulatory services of a governmental nature. Twelve departmental corporations are listed in Schedule B to the Act:—

Agricultural Stabilization Board (formerly Agricultural Prices Support Board)
Atomic Energy Control Board
Canadian Maritime Commission
Director of Soldier Settlement
The Director, The Veterans' Land Act
Dominion Coal Board
Economic Council of Canada
Fisheries Prices Support Board
Municipal Development and Loan Board
National Gallery of Canada
National Research Council
Unemployment Insurance Commission.

Agency Corporations.—An agency corporation is defined as a Crown corporation that is an agent of Her Majesty in right of Canada and is responsible for the management of trading or service operations on a quasi-commercial basis or for the management of procurement, construction or disposal activities on behalf of Her Majesty in right of

* Not all Crown corporations are subject to the provisions of the Financial Administration Act. For example, the Canadian Wheat Board, the Bank of Canada and its subsidiary the Industrial Development Bank, because of the special nature of their functions, are excluded from operations of the Crown corporations Part of the Act and are governed by their own Acts of incorporation as is also the Eastern Rockies Forest Conservation Board, a joint federal-provincial enterprise and the Canadian Corporation for the 1967 World Exhibition. The Canada Council was set up under the Canada Council Act (assented to Mar. 28, 1957) as a Crown corporation but has been declared not an agency of the Crown and hence is not included in the Schedules to the Financial Administration Act; the same situation applies to the Atlantic Development Board set up under the Atlantic Development Board Act (assented to Dec. 20, 1962).

Canada. The following agency corporations are listed in Schedule C to the Financial Administration Act or have been subsequently added to that Schedule by the Governor in Council:—

- Atomic Energy of Canada Limited
- Canadian Arsenal Limited
- Canadian Commercial Corporation
- Canadian National (West Indies) Steamships Limited
- Canadian Patents and Development Limited
- Centennial Commission
- Crown Assets Disposal Corporation
- Defence Construction (1951) Limited
- National Battlefields Commission
- National Capital Commission (formerly Federal District Commission)
- National Harbours Board
- Northern Canada Power Commission (formerly Northwest Territories Power Commission)
- Park Steamship Company Limited.

Two corporations, Canadian Sugar Stabilization Corporation Limited and Commodity Prices Stabilization Corporation Limited, listed in Schedule C when the Financial Administration Act was proclaimed, have since discontinued operations and surrendered their charters. By an Order in Council of June 15, 1955, the name of the Northwest Territories Power Commission (now Northern Canada Power Commission) was deleted from Schedule D and added to Schedule C, effective Apr. 1, 1954.

Proprietary Corporations.—A proprietary corporation is defined as a Crown corporation that (1) is responsible for the management of lending or financial operations, or for the management of commercial or industrial operations involving the production of or dealing in goods and the supplying of services to the public, and (2) is ordinarily required to conduct its operations without parliamentary appropriations. The following proprietary corporations are listed in Schedule D to the Act or have been subsequently added to that Schedule by the Governor in Council:—

- Air Canada (formerly Trans-Canada Air Lines)
- Canadian Broadcasting Corporation
- Canadian Overseas Telecommunication Corporation
- Central Mortgage and Housing Corporation
- Eldorado Aviation Limited
- Eldorado Mining and Refining Limited
- Export Credits Insurance Corporation
- Farm Credit Corporation (formerly Canadian Farm Loan Board)
- National Railways, as defined in the Canadian National-Canadian Pacific Act, 1933
- Northern Transportation Company Limited
- Polymer Corporation Limited
- St. Lawrence Seaway Authority
- Seaway International Bridge Corporation Limited (formerly Cornwall International Bridge Company Limited), subsidiary to the St. Lawrence Seaway Authority.

Departmental corporations are governed by the provisions of the Financial Administration Act that are applicable to departments generally. Agency and proprietary corporations, however, are subject to the provisions of the Crown corporations Part of the Act although, if there is any inconsistency between the provisions of that Part and those of any other Act applicable to a corporation, the Act provides that the latter prevail. There is provision in the Part for the control and regulation of such matters as corporation budgets and bank accounts, the turning over to the Receiver General of surplus money, limited loans for working-capital purposes, the awarding of contracts and the establishment of reserves, the keeping and auditing of accounts, and the preparation of financial statements and reports and their submission to Parliament through the appropriate Minister.

A further form of control is exercised by Parliament through the power to vote financial assistance. This may take different forms. For some corporations, capital may be provided by parliamentary grants, loans or advances that may subsequently be converted into capital stock or bonds; for others it may be by the issue of capital stock to be subscribed and paid for by the Government; or by the sale of bonds to either the Government or the public. A few corporations have financed all or a portion of their requirements from their own resources or earnings.

Prior to 1952, Crown corporations did not pay corporate income taxes. However, the Income Tax Act was later amended so that, in respect of financial years commencing after Jan. 1, 1952, proprietary Crown corporations pay taxes on income earned in the same manner as any privately owned corporation. One desirable result of this amendment is that the financial statements of these Crown companies are now more comparable with those of private industry, with which in some instances they are in competition, and thus it is easier to assess the relative efficiency of their operations.

The functions of the various Crown corporations are given briefly in the following paragraphs. For a number of them, further details are included in the Chapters dealing with the subjects concerned (see Index).

Agricultural Stabilization Board.—The Board was established in 1958 (SC 1957-58, c. 22) to administer the provisions of the Agricultural Stabilization Act. The Board reports to Parliament through the Minister of Agriculture and routine administrative matters are handled through departmental channels.

Air Canada.—Formerly Trans-Canada Air Lines, the Corporation was incorporated by Act of Parliament in 1937 to provide a publicly owned air transportation service, with powers to carry on its business throughout Canada and outside of Canada. Air Canada now maintains passenger, mail and commodity traffic services over nation-wide routes and also services to the United States, England, Scotland, Ireland, France, Switzerland, West Germany, Austria, Bermuda, the Bahamas, Jamaica, Antigua, Barbados and Trinidad. Air Canada is responsible to Parliament through the Minister of Transport.

Atlantic Development Board.—The Act establishing this Board (SC 1962-63, c. 10) received Royal Assent on Dec. 20, 1962. The Board is composed of a chairman and four other members appointed by Order in Council and reports to Parliament through the Minister of Transport. Its functions are to inquire into and report upon measures and projects for fostering the economic growth and development of the Atlantic region of Canada and to assess and make recommendations with respect to particular projects referred to it by the Minister.

Atomic Energy Control Board.—By Act of Parliament (RSC 1952, c. 11) proclaimed October 1946, the regulation and control of atomic energy in Canada was placed under the Atomic Energy Control Board. The Board reports to Parliament through the Chairman of the Committee of the Privy Council on Scientific and Industrial Research (at present the Minister of Industry).

Atomic Energy of Canada Limited.—This Crown company was incorporated in February 1952 under the Atomic Energy Control Act, 1946 (RSC 1952, c. 11) to take over from the National Research Council on Apr. 1, 1952 the operation of the Chalk River project. The main activities of the company are (a) the development of economic nuclear power, (b) scientific research and development in the atomic energy field, (c) the operation of nuclear reactors and (d) the production of radioactive isotopes and associated equipment such as Cobalt-60 beam therapy units for the treatment of cancer. The company reports to Parliament through the Chairman of the Committee of the Privy Council on Scientific and Industrial Research (at present the Minister of Industry).

Bank of Canada.—Legislation of 1934 (RSC 1952, c. 13) provided for the establishment of a central bank in Canada, the function of which is to regulate credit and currency, to control and protect the external value of the Canadian dollar and to stabilize the level of production, trade, prices and employment so far as may be possible within the scope of monetary action. The Bank acts as the fiscal agent of the Government of Canada, manages the public debt and has the sole right to issue notes for circulation in Canada. The Bank is managed by a Board of Directors appointed by the Government and composed of a Governor, a Deputy Governor and 12 Directors; the Deputy Minister of Finance is also a member of the Board. The Bank reports to Parliament through the Minister of Finance and is governed by its own Act of incorporation. (See footnote, p. 129.)

The Canada Council.—Established by Order in Council dated Apr. 15, 1957, this corporation of a chairman, a vice-chairman and 19 other members, a director and an associate director

operates under the terms of the Canada Council Act, assented to Mar. 28, 1957. The function of the Council is to encourage the arts, humanities and social sciences in Canada. Its work is financed by a \$50,000,000 University Capital Grants Fund (now nearing depletion) and the earnings from a \$50,000,000 Endowment Fund. In addition, the Canadian Parliament, on Apr. 3, 1965, approved a special appropriation of \$10,000,000 to enable the Council to meet its minimum foreseeable requirements during the next few years in the furtherance of the general purposes set out in Sect. 8 of the Act. In the making, managing and disposing of investments under the Act, the Council has the advice of an Investment Committee of five, including the chairman and another member of the Council. The proceedings of the Council are reported each year to Parliament through the Secretary of State. (See footnote, p. 129.)

Canadian Arsenals Limited.—This company was established under the Companies Act by Letters Patent dated Sept. 20, 1945 and is subject to the Government Companies Operation Act (RSC 1952, c. 133) and certain provisions of the Financial Administration Act (RSC 1952, c. 116). The Company was set up to take over and operate Crown-owned plants and equipment. It manufactures small arms and a wide variety of ammunition and components and has extensive facilities for the filling and assembly of artillery, ammunition, mines, bombs, grenades, rockets and other specialties up to torpedo warheads. Its Divisions, together with the locations of their plants, are as follows: Dominion Arsenal Division (Quebec City and Val Rose, Que.); Small Arms Division (Long Branch, Ont.); Filling Division (St. Paul l'Ermite, Que.). The Company reports to Parliament through the Minister of Industry in his capacity as Minister of Defence Production.

Canadian Broadcasting Corporation.—The new Broadcasting Act, 1958, continues the CBC as a Crown corporation for the purpose of operating a national broadcasting service. It has the authority to maintain and operate broadcasting stations and networks and to originate and secure programs from within and outside Canada. This national radio and television service is financed through annual grants from Parliament and revenues from commercial operations.

The Corporation consists of 11 directors appointed by the Governor in Council and chosen to give representation to the principal geographical divisions of the country. The Corporation reports to Parliament through a Minister of the Crown (at present the Secretary of State). The President and Vice President are full-time executives appointed for a period of seven years; the other nine Directors are appointed for periods of three years and may serve two consecutive terms. The President is the chief executive of the Corporation and, with the Vice President, is responsible for the conduct of the affairs of the Corporation. As the chief executive, the President receives, interprets and applies the policies and directives of the Directors of the Corporation and establishes administrative and operating policies to control the activities of all operating units—English Networks, French Networks, Regional Broadcasting and the International Service—and of corporate staff departments—Programming, Planning, Engineering and Finance.

In practice, attention of the President is primarily directed to the broad fields of corporate policy, long-range planning and financing. He reports on activities to the Directors of the Corporation and the conduct of relations with Parliament, the Board of Broadcast Governors and the public. The Vice President assists the President in his role of chief executive by assuming primary responsibility for the current operations of the Corporation.

The Corporation's Head Office is situated in Ottawa. Headquarters for English Networks is located in Toronto and for French Networks in Montreal and Regional Headquarters are situated in St. John's for Newfoundland, Halifax for the Maritime Provinces, Winnipeg for the Prairie Provinces, and Vancouver for British Columbia. Headquarters for the Northern and Armed Forces Services is in Ottawa and that for the International Service is in Montreal.

Canadian Commercial Corporation.—This Corporation was established on May 1, 1946, by the Canadian Commercial Corporation Act (RSC 1952, c. 35). Its principal purpose is to assist in the development of trade between Canada and other nations by acting on behalf of the Canadian Government as the contracting agency when other countries wish to purchase defence or other supplies and services from Canada on a government-to-government basis. The Corporation may enter into transactions under the provisions of the Act for any department or agency of the Government of Canada.

The Corporation is operated by the Department of Defence Production with staff provided by the Department and reports to Parliament through the Minister of Industry in his capacity as Minister of Defence Production.

Canadian Corporation for the 1967 World Exhibition.—This Corporation was established by Act of Parliament (SC 1962-63, c. 12) to plan, organize, hold and administer the Canadian Universal and International Exhibition, Montreal 1967, to be held on the occasion of the Centenary of Canadian Confederation. The Exhibition is one of the First Category, and Canada is the first country in the Americas to hold such an exhibition under a franchise of the International Bureau of Exhibitions.

The Exhibition, known as EXPO '67, will be held in Montreal Apr. 28 to Oct. 27, 1967, on a site prepared by the City in three main areas grouped around historic St. Helen's Island in the middle of the St. Lawrence River. The theme, "Man and His World", is purported to demonstrate how, through the ages, man has met the challenge of his environment.

The Corporation is headed by a commissioner general and president; a deputy commissioner general and vice president; and a general manager. It reports to Parliament through the Minister of Trade and Commerce. The present address of the Corporation is Place Ville-Marie, Montreal; the telephone number is EXPosition 1967; and the cable address is Montexpro.

Canadian Government Participation, 1967 Exhibition.—This temporary government organization was set up officially on Oct. 24, 1963, following some months of study and preparatory work. It is not a Crown company but is nevertheless independent of Federal Government departments. The Commissioner General has the status of a Deputy Head and reports directly to the Minister of Trade and Commerce. He is entrusted with the planning, construction and operation of buildings and exhibits that will depict Canada, Canadians and Canadian achievements for better comprehension by visitors from all parts of the world to the International Exhibition, EXPO '67, to be held in Montreal Apr. 28 to Oct. 27, 1967.

Canadian Maritime Commission.—This Commission was created in 1947 by the Canadian Maritime Commission Act (RSC 1952, c. 38). It considers and recommends policies and measures necessary for the operation, maintenance, manning and development of a merchant marine and a shipbuilding and ship-repairing industry. The Commission administers the Ship Construction Assistance Regulations established by Order in Council PC 1961-1290 passed Sept. 8, 1961 and the Canadian Vessel Construction Assistance Act (RSC 1952, c. 43). It also administers steamship subsidies voted by Parliament. Other functions include advice to other government departments on their shipbuilding requirements, consultation with the Department of National Revenue in the administration of the laws relating to the coasting trade of Canada and the co-ordination of the overseas movement of men and material for the Department of National Defence. It has responsibility in international matters relating to merchant shipping, such as NATO, IMCO and other international bodies. The Chairman has the status of a Deputy Minister and the Commission reports to Parliament through the Minister of Transport.

Canadian National Railways.—The Canadian National Railway Company was incorporated (SC 1919, c. 13) to operate and manage a national system of railways, including the Canadian Northern Railway System, the Canadian Government Railways and all lines entrusted to it by Order in Council. In 1923 the Grand Trunk Railway Company of Canada was amalgamated with the Canadian National Railway Company and since 1923 a number of railway lines acquired by the Government have been entrusted to the Company for operation and management, including the Newfoundland Railway and steamship services in 1949, the Temiscouata Railway in 1950, and the Hudson Bay Railway and the Northwest Communication System in 1953. The Canadian National Railways Act, 1919 was repealed in 1955 and the Canadian National Railways Act (SC 1955, c. 29) substituted therefor.

The Canadian National Railway Company is controlled by a chairman and board of directors appointed by the Governor in Council, who report to Parliament through the Minister of Transport.

Canadian Overseas Telecommunication Corporation.—This Crown company was created on Dec. 10, 1949 by Act of Parliament (RSC 1952, c. 42) to acquire for public operation external telecommunication assets in Canada, in keeping with the Commonwealth Telegraph Agreement signed May 11, 1948. This Agreement was designed to bring about the consolidation and strengthening of the radio and cable communication systems of the Commonwealth. The Corporation is responsible to Parliament through the Minister of Transport.

Canadian Patents and Development Limited.—Canadian Patents and Development Limited is a Crown corporation established in 1948, pursuant to authority granted in an amendment to the Research Council Act passed in 1946. The primary purpose of the Company, which is a subsidiary of the National Research Council, is to make available to industry, through licensing arrangements, commercial inventions originating in the NRC laboratories. The Company also handles inventions referred to it from the research establishments of Federal Government departments and agencies, Canadian universities, and provincial research councils. Any profits that the Company may derive from licensing arrangements are used for further research and development. The Company's Board of Directors is composed of representatives of the National Research Council, government departments and agencies, industry and the universities. The Company reports to Parliament through the Chairman of the Committee of the Privy Council on Scientific and Industrial Research (at present the Minister of Industry).

Canadian Wheat Board.—The Board was incorporated in 1935 under the Canadian Wheat Board Act to market, in an orderly manner, in the interprovincial and export trade, grain grown in Canada. Its powers include authority to buy, take delivery of, store, transfer, sell, ship or otherwise dispose of grain. Except as directed by the Governor in Council, the Board was not originally authorized to buy grain other than wheat but, since Aug. 1, 1949, it may also buy oats and barley if authorized to do so by Regulation approved by the Governor in Council. Only grain produced in the designated area, which includes Manitoba, Saskatchewan, Alberta and parts of British Columbia and Ontario, is purchased by the Board, which controls the delivery of grain into elevators and railway cars in that area as well as the interprovincial movement and export of wheat, oats and barley generally. The Board is governed by its own Act of incorporation (see footnote, p. 129). It reports to Parliament through the Minister of Trade and Commerce.

Centennial Commission.—The Centennial Commission is a Crown corporation established by Parliament (SC 1960-61, c. 60 as amended) and responsible for the co-ordination and administration of projects relating to the Centennial of Confederation in Canada. It consists of a commissioner, an associate commissioner and not more than 12 directors, each of whom is appointed by the Governor in Council. The Commission is responsible to Parliament through the Secretary of State.

Central Mortgage and Housing Corporation.—This Corporation was incorporated by Act of Parliament (RSC 1952, c. 46) in December 1945 to administer the National Housing Acts. Under the National Housing Act, 1954 (SC 1953-54, c. 23, as amended), the Corporation insures mortgage loans made by approved lenders and makes direct loans for new home-ownership, rental housing and existing housing in urban renewal areas; guarantees home improvement loans made by banks; undertakes subsidized rental housing projects and land assembly developments under federal-provincial arrangements; offers loans and subsidies for public housing projects; makes loans for land assembly projects to be used for public housing; makes loans to limited-dividend and non-profit housing companies for low-rental housing projects; makes loans for university housing projects and to provinces and municipalities for sewage treatment projects designed to eliminate water and soil pollution; makes contributions and loans to provinces and municipalities for urban renewal operations; conducts housing research; encourages urban planning and owns and manages rental housing units including those built for war workers and veterans. The Corporation arranges for and supervises construction of housing projects on behalf of the Department of National Defence and other government departments and agencies. The Corporation is responsible to Parliament through the Minister of Citizenship and Immigration.

Crown Assets Disposal Corporation.—This Corporation is established under the Surplus Crown Assets Act (RSC 1952, c. 260) and is subject to the Financial Administration Act (RSC 1952, c. 116). In June 1944, War Assets Corporation was established by statute to replace War Assets Corporation Limited which had been incorporated in 1943. In 1949 the name of War Assets Corporation was changed to Crown Assets Disposal Corporation. The Corporation's function is to dispose of surplus Crown assets. It is responsible to Parliament through the Minister of Industry in his capacity as Minister of Defence Production.

Defence Construction (1951) Limited.—Defence Construction Limited began its operations in November 1950 as a Crown agency responsible for awarding and supervising defence construction projects. On July 12, 1951, under authority of the Defence Production Act, the present company was established under the name of Defence Construction (1951) Limited and took over the responsibilities of the former agency. From inception until Apr. 1, 1951 the company reported to the Minister of Trade and Commerce, from which date it reported to the Minister of Defence Production until the Minister of Industry was given the powers of the Minister of Defence Production on July 22, 1963. On Apr. 22, 1965, the control and supervision of the company was transferred to the Minister of National Defence.

The company's prime responsibility is the construction of defence projects, including the calling and review of all tenders and subsequent contract awards, the supervision of actual construction work in the field, and the administration of all projects from the Ottawa Head Office. More specifically, however, the company's operations cover five distinct spheres: defence projects in Canada for the Department of National Defence; all defence projects in France for the Department of National Defence under the North Atlantic Treaty Organization agreement; maintenance and repair contracts at Department of National Defence sites throughout Canada; defence construction for the U.S. Government in Canada; and advice and assistance in construction aspects of certain projects such as the Canadian Corporation for the 1967 World Exhibition.

Director of Soldier Settlement and Director of the Veterans' Land Act.—The Director of Soldier Settlement (under the Act of 1919) is also the Director of the Veterans' Land Act, and in each capacity is legally a corporation sole. For administrative purposes, however, the programs carried on under both Acts constitute integral parts of the services provided by the Department of Veterans Affairs.

Dominion Coal Board.—The Board, established as a department in 1947 by the Dominion Coal Board Act (RSC 1952, c. 86), has the responsibility of studying and recommending to the Government policies concerning the production, import, distribution and use of coal. The Chairman has the status of a Deputy Minister and the Board reports to Parliament through the Minister of Mines and Technical Surveys. The Board administers transportation and other subventions relating to coal and also administers loans authorized under the Coal Production Assistance Act (RSC 1952, c. 173, as amended).

Eastern Rockies Forest Conservation Board.—The Board was appointed in 1947 under the Eastern Rocky Mountain Forest Conservation Act which authorized an agreement between the Government of Canada and the Province of Alberta relating to the protection and conservation of the forests of that portion of the eastern slope of the Rocky Mountains which gives rise to the

major tributaries of the Saskatchewan River. The function of the Board is to determine the policy necessary to obtain the greatest possible flow of water in the Saskatchewan River system. The planning of programs of forest use and conservation is a joint duty of the Board and the provincial Forest Service; the administration of the conservation area is a function of the province. In April 1962, a Technical Co-ordinating Committee for Watershed Research was established to undertake study of the related needs defined by the Board. The Committee's programs, undertaken by seven co-operating agencies of the Federal and Alberta Governments, are co-ordinated by the federal Department of Forestry.

Funds for capital expenditures during the first seven years of the agreement were provided by the Federal Government with maintenance expenditures being paid by the Province of Alberta. In 1955 the province undertook the responsibility of financing both capital improvements and maintenance work. Currently, one member of the three-man Board is appointed by the Federal Government and the province has the right to appoint two members. The choice of one of the three members as Board chairman is vested in the province. The Board reports to Parliament through the Minister of Forestry. (See footnote, p. 129.)

Economic Council of Canada.—This Corporation, established under legislation passed on Aug. 2, 1963 (SC 1963, c. 11), consists of a full-time chairman and two full-time directors appointed for a term not to exceed seven years and not more than 25 additional members to serve part-time and without remuneration. The Council is to be as representative as possible of labour, agriculture and primary industries, secondary industry and commerce, and the general public. Its functions are to advise and recommend measures that will achieve in Canada the highest possible levels of employment and efficient production so that the country may enjoy a high and consistent rate of economic growth and that all Canadians may share in rising living standards; to carry on the duties of the former National Productivity Council which were to promote and expedite continuing improvement in productive efficiency in the various aspects of Canadian economic activity; and to publish an annual review of medium- and long-term economic prospects and problems. The Council reports to Parliament through the Secretary of State.

Eldorado Aviation Limited.—This company was incorporated Apr. 23, 1953 to carry air traffic, both passenger and freight, for Eldorado Mining and Refining Limited and its wholly owned subsidiary, Northern Transportation Company Limited. It reports to Parliament through the Minister of Trade and Commerce.

Eldorado Mining and Refining Limited.—Set up in 1944 under the name of Eldorado Mining and Refining (1944) Limited (the date was omitted from the name in June 1952), the company's business is the mining and refining of uranium and the production of nuclear fuels in Canada. The company has also entered into contracts for the purchase of uranium concentrates from private producers in Canada. It reports to Parliament through the Minister of Trade and Commerce.

Export Credits Insurance Corporation.—This Corporation commenced operations in 1945 under the Export Credits Insurance Act, 1944 (RSC 1952, c. 105, as amended) and is administered by a Board of Directors (including the Deputy Minister of Trade and Commerce and the Deputy Minister of Finance) with the advice of an Advisory Council. Its function is to insure Canadian exporters against non-payment by foreign buyers arising out of credit and political risks involved in foreign trade. The Corporation is also authorized to provide financing in respect of an export transaction involving extended credit terms. It reports to Parliament through the Minister of Trade and Commerce.

Farm Credit Corporation.—This Corporation was established on Oct. 5, 1959 (SC 1959, c. 43) for the purpose of providing for the extension of long-term mortgage credit to farmers. The Corporation also administers the Farm Machinery Syndicate Credit Act and is responsible to Parliament through the Minister of Agriculture.

Fisheries Prices Support Board.—The Board was set up in July 1947 (RSC 1952, c. 120) to recommend to the Government price support measures when severe price declines occur. The Board functions under the direction of the Minister of Fisheries and consists of a chairman, who is a senior officer of the Department of Fisheries, and five members chosen from private and co-operative firms in the industry. The Board has authority to buy fishery products and to sell or otherwise dispose of them or to pay producers the difference between a price prescribed by the Board and the average price the product actually commands.

Industrial Development Bank.—The Bank, a subsidiary of the Bank of Canada, was incorporated in 1944 to provide loans to industrial enterprises where financing is not available through recognized lending organizations. (See footnote, p. 129.)

Municipal Development and Loan Board.—The Act establishing this Board (SC 1963, c. 13) received Royal Assent on Aug. 2, 1963. The Board comprises a chairman and four other

members, appointed by the Governor in Council, and reports to Parliament through the Minister of Finance. The Board makes loans to municipalities to assist in the construction of additional municipal capital projects, providing increased employment. In four provinces, by agreement, the Board makes these loans to the province, which makes similar loans to its municipalities.

National Battlefields Commission.—This Commission was established by Act of Parliament in 1908 to preserve the historic battlefields at Quebec City. The Commission is composed of nine members, seven appointed by the Federal Government and one each by the Provinces of Ontario and Quebec. The Commission is supported by annual appropriations of the Federal Government and is responsible to Parliament through the Minister of Northern Affairs and National Resources.

National Capital Commission.—This Commission is a Crown agency created by the National Capital Act (SC 1958, c. 37), proclaimed Feb. 6, 1959. It is the lineal descendant of the Federal District Commission. The Commission is served by a full-time paid chairman and comprises a total of 20 members representative of the ten provinces of Canada. There is a staff of seven officials reporting to a general manager, and a work force that fluctuates between 500 and 700, depending on the season.

Co-ordination and development of public lands in the National Capital Region are undertaken by direct planning and construction by the Commission's staff; by co-operation with municipalities; by provision of planning aid or financial assistance in municipal projects; and by advising the Department of Public Works on the siting and appearance of all Federal Government buildings in the 1,800-sq. mile National Capital Region. The Commission reports to Parliament through the Minister of Public Works.

National Gallery of Canada.—The beginnings of the National Gallery of Canada are associated with the founding of the Royal Canadian Academy of Arts in 1880. The Marquis of Lorne, then Governor General, had recommended and assisted the founding of the Academy. One of the three tasks he assigned to that institution was the establishment of a National Gallery at the seat of government. By Act of Parliament in 1913, re-enacted in 1951, the National Gallery was placed under the management of a Board of Trustees appointed by the Governor General in Council and now operates under the National Gallery Act (RSC 1952, c. 186). It is responsible to Parliament through the Secretary of State.

The first charge of the National Gallery is the development, care and display of the national art collections. Its services to the public include a large reference library on the history of art and related subjects; an Exhibition Extension Branch through which travelling exhibitions, lectures and the showing of art films, and guided tours of the Gallery at Ottawa are conducted; the production of art publications and reproductions; and a National Conservation Research Laboratory.

National Harbours Board.—The Board was established by Act of Parliament in 1936. It is responsible for the administration of port facilities at the harbours of St. John's, Nfld.; Halifax, N.S.; Saint John, N.B.; Chicoutimi, Quebec, Trois-Rivières and Montreal, Que.; Vancouver, B.C.; and Churchill, Man.; the Jacques Cartier and Champlain Bridges at Montreal, Que.; and the grain elevators at Prescott and Port Colborne, Ont. The Board reports to Parliament through the Minister of Transport.

National Research Council.—This is an agency of the Canadian Government established in 1916 to promote scientific and industrial research. The Council operates science and engineering laboratories in Ottawa, Halifax and Saskatoon; gives direct financial support to research carried out in Canadian university and industrial laboratories; sponsors Associate Committees co-ordinating research on specific problems of national interest; and develops and maintains the nation's primary physical standards. Other activities include the provision of free technical information to manufacturing concerns; the publication of research journals; and representation of Canada in International Scientific Unions. The Council also has the duty of advising the Committee of the Privy Council on Scientific and Industrial Research on questions of scientific and technological methods affecting the expansion of Canadian industries or the utilization of the country's natural resources. Patentable inventions developed in the Council's laboratories are made available for manufacture through a subsidiary company, Canadian Patents and Development Limited (see p. 133). The National Research Council consists of a president, three vice presidents, and 17 members representing Canadian universities, industry and labour. The Council is incorporated under the Research Council Act (RSC 1952, c. 239, as amended), and reports to Parliament through the Chairman of the Committee of the Privy Council on Scientific and Industrial Research (at present the Minister of Industry).

Northern Canada Power Commission.—The Commission was established by Act of Parliament in 1948 to provide electric power to points in the Northwest Territories where a need developed and where power could be supplied on a self-sustaining basis; the Act was amended in 1950 to give authority to the Commission to provide similar services in the Yukon Territory. The name of the Commission, formerly Northwest Territories Power Commission, was changed in 1956. The Commission is composed of a chairman and two members appointed by the Governor in Council. The Commission operates four hydro-electric plants, two of which are located in the Northwest Territories on the Snare River near Yellowknife, and two in the Yukon Territory on the Yukon River at Whitehorse and on the Mayo River near Mayo; a fifth hydro plant under construction on the Taltson River near Fort Smith, N.W.T., is scheduled for completion in 1965. Diesel electric plants are operated at Fort Smith, Fort Simpson, Fort Resolution and Frobisher Bay, N.W.T., and Field, B.C., diesel power and central heating plants at Inuvik and Frobisher Bay, N.W.T., and Moose Factory, Ont., and water supply and sewerage systems at Inuvik and Moose Factory. The Commission also operates, on behalf of the Department of Northern Affairs and National Resources, diesel electric plants at Fort McPherson and Aklavik, N.W.T., heating plants at Fort McPherson, Fort Simpson and Frobisher Bay, N.W.T., and domestic water supply and sewerage systems at Fort McPherson, Fort Simpson and Frobisher Bay.

The Commission reports to Parliament through the Minister of Northern Affairs and National Resources.

Northern Transportation Company Limited.—This Company was incorporated in 1947 under the title of Northern Transportation Company (1947) Limited, the date being omitted from the name in 1952. Previously a company chartered under an Alberta statute, it has been a wholly owned subsidiary of Eldorado Mining and Refining Limited since that Crown company was established and carries out the business of a common carrier in the Mackenzie River watershed. The Company is responsible to Parliament through the Minister of Trade and Commerce.

Park Steamship Company Limited.—After World War II this Company acted as an agent for Crown Assets Disposal Corporation in the sale and delivery to purchasers of government war-built ships. This work is completed but the Company remains available to carry out any appropriate duties. It has no staff of its own, any necessary work being done by the staff of the Canadian Maritime Commission (see p. 133). The Company reports to Parliament through the Minister of Transport.

Polymer Corporation Limited.—This Corporation was established in 1942 by Letters Patent under the Companies Act and is subject to the Government Companies Operation Act (RSC 1952, c. 133) and the Financial Administration Act (RSC 1952, c. 116). It was set up to construct and operate a synthetic rubber plant which now produces a variety of synthetic rubber products and some chemicals. The Corporation's principal plant is located at Sarnia, Ont., with specialty rubber and butyl plants in France and Belgium, respectively. The Corporation is responsible to Parliament through the Minister of Industry in his capacity as Minister of Defence Production.

St. Lawrence Seaway Authority.—The St. Lawrence Seaway Authority was established by Act of Parliament in 1951 (RSC 1952, c. 242) and came into force by proclamation on July 1, 1954. The Authority was incorporated for the purposes of constructing, maintaining and operating all such works as may be necessary to provide and maintain, either wholly in Canada or in conjunction with works undertaken by an appropriate authority in the United States, a deep waterway between the Port of Montreal and Lake Erie. The Authority is composed of a president, a vice president and a member, and reports to Parliament through the Minister of Transport.

Unemployment Insurance Commission.—The Commission was appointed on Sept. 24, 1940 under the provisions of the Unemployment Insurance Act, 1940 (RSC 1952, c. 273). It is composed of three commissioners appointed by the Governor in Council, of whom one is designated chief commissioner. One commissioner, other than the chief commissioner, is appointed after consultation with organizations representative of workers and the other after consultation with organizations representative of employers. The Chief Commissioner is appointed to hold office for a period of ten years and each of the other Commissioners to hold office for a period not exceeding ten years. The Commission is responsible to Parliament through the Minister of Labour.

Section 4.—Acts Administered by Federal Departments*

List of the Principal Acts of Parliament Administered by Departments of the Government of Canada

NOTE.—Copies of individual Acts of Parliament may be obtained from the Queen's Printer, Ottawa, at prices of from 10 cents to \$1.50 per copy, according to number of pages. Where duplications of certain Acts appear in the list, parts of these Acts are administered under the Departments given.

Department, Year and Chapter of Statute	Name of Act	Department, Year and Chapter of Statute	Name of Act
Agriculture— RSC 1952	4 Agricultural Products Board 5 Agricultural Products Co-operative Marketing 6 Agricultural Products Marketing 9 Animal Contagious Diseases 22, 305 Canada Dairy Products 25, 308 Canada Grain 47 Cheese and Cheese Factory Improvement 52, 313 Cold Storage 66 Department of Agriculture 81 Destructive Insect and Pest 101 Experimental Farm Stations 126 Fruit, Vegetables and Honey 141 Hay and Straw Inspection 155 Inspection and Sale 167 Live Stock and Live Stock Products 168 Live Stock Pedigree 172 Maple Products Industry 177 Meat and Canned Foods 180 Milk Test 209 Pest Control Products 213 Prairie Farm Assistance 214 Prairie Farm Rehabilitation (amended 1955, c.39) 294 Wheat Co-operative Marketing 1955 27 Canada Agricultural Products Standards 36 Meat Inspection 1957 27 Fertilizers 1957-58 22 Agricultural Stabilization 1959 35 Seeds 42 Crop Insurance 43 Farm Credit (amended 1960-61, c.36, 1962-63, c.7 and 1964, c.12) 44 Humane Slaughter of Food Animals 1960 14 Feeds 1964-65 29 Farm Machinery Syndicates Credit	Defence Production— RSC 1952 35 Canadian Commercial Corporation 62 Defence Production 260 Surplus Crown Assets External Affairs— 1911 28 Respecting the International Boundary Waters Treaty and the existence of the International Joint Commission (amended 1914, c. 5, and 1922, c. 43) 1948 71 Carrying into effect the Treaties of Peace between Canada and Italy, Romania, Hungary and Finland 1952 50 Carrying into effect the Treaty of Peace between Canada and Japan RSC 1952 68 Department of External Affairs 122 Food and Agriculture Organization of the United Nations 142 High Commissioner in the United Kingdom 218 Privileges and Immunities (NATO) 219 Privileges and Immunities (International Organizations) (amended 1965, c. 47) 275 United Nations 1953-54 54 Diplomatic Immunities (Commonwealth Countries) 1964-65 22 Territorial Sea and Fishing Zones Finance— RSC 1952 12 Appropriation (Annual) 13 Canadian National Railways Financing and Guarantee (Annual) 15 Bank 19 Bank of Canada 82 Bills of Exchange Bretton Woods Agreements Diplomatic Service (Special) Superannuation 110 Farm Improvement Loans 116 Financial Administration 131 Gold Export 151, 326 Industrial Development Bank 150 Interest 182 Municipal Grants 183 Municipal Improvements Assistance 204 Pawnbrokers 221 Provincial Subsidies 232 Quebec Savings Banks 245 Satisfied Securities 261, 336 Tariff Board 278 Veterans Business and Professional Loans 296 Winding-up 315 Currency, Mint and Exchange Fund 1952-53 47 Public Service Superannuation 1953-54 28 Fire Losses Replacement Account 1955 12 Members of Parliament Retiring Allowances	
Auditor General— RSC 1952 116	Financial Administration		
Citizenship and Immigration— 1924 48 1927 37 1934 29 1943 19 RSC 1952 33 67 146 149 325	Indian Reserve Lands in Ontario St. Regis Indian Reservation Caughnawaga Indian Reserve British Columbia Indian Reserves Mineral Resources Canadian Citizenship Department of Citizenship and Immigration Immigration Aid Societies Indian Immigration		
Civil Service Commission— 1960-61 57	Civil Service		

* Compiled from information supplied by the respective Departments.

List of the Principal Acts of Parliament Administered by Departments of the Government of Canada—continued

Department, Year and Chapter of Statute	Name of Act	Department, Year and Chapter of Statute	Name of Act
Finance —concluded		Justice —concluded	
1955 31	Canadian National Railways Refunding	RSC 1952 71	Department of Justice
46	Fisheries Improvement Loans	98	Exchequer Court
1956 1	Prairie Grain Producers Interim Financing	106	Expropriation
2	Temporary Wheat Reserves	111	Farmers' Creditors Arrangement
29	Federal-Provincial Tax Sharing Arrangements	116	Financial Administration
1957-58 26	Beechwood Power Project	127	Fugitive Offenders
1959 32	Public Service Pension Adjustment	144	Identification of Criminals
1960 1	Prairie Grain Loans	154	Inquiries
32	International Development Association	158	Interpretation
1960-61 5	Small Businesses Loans	159	Judges
58	Federal-Provincial Fiscal Arrangements	160	Juvenile Delinquents
1963 13	Municipal Development and Loans	171	Lord's Day
1964-65 24	Canada Student Loans	198	Official Secrets
		210	Petition of Right
		217, 333	Prisons and Reformatories
		234	Railway
		253	Solicitor General
		259, 335	Supreme Court
		266	Tobacco Restraint
		299	Yukon Administration of Justice
		307	Canada Evidence
		314	Combines Investigation
		322	Extradition
		1952-53 30	Crown Liability
		1953-54 51	Criminal Code
		1958 38	Parole
		1959 34	Royal Canadian Mounted Police Superannuation
		54	Royal Canadian Mounted Police
		44	Canadian Bill of Rights
		1960-61 53	Penitentiary
Fisheries —		Labour —	
RSC 1952 61	Deep Sea Fisheries	RSC 1927 110	Conciliation and Labour
69	Department of Fisheries	RSC 1952 72	Department of Labour
118	Fish Inspection	108	Fair Wages and Hours of Labour
119	Fisheries	132	Government Annuities
120	Fisheries Prices Support	134, 323	Government Employees Compensation
121	Fisheries Research Board	152	Industrial Relations and Disputes Investigation
177	Meat and Canned Foods	178	Merchant Seamen Compensation
194	Northern Pacific Halibut Fishery (Convention)	236	Reinstatement in Civil Employment
244	Salt Fish Board	295	White Phosphorous Matches
293	Whaling Convention	1952-53 19	Canada Fair Employment Practices
1952-53 15	Coastal Fisheries Protection	1955 50	Unemployment Insurance
44	North Pacific Fisheries Convention	1958 38	Female Employees Equal Pay
1953-54 18	Northwest Atlantic Fisheries Convention	1957-58 24	Annual Vacations
1955 34	Great Lakes Fisheries Convention	1960-61 6	Technical and Vocational Training Assistance
1957 11	Pacific Salmon Fisheries Convention	26	Vocational Rehabilitation of Disabled Persons
31	Pacific Fur Seals Convention	1964-65 38	Canada Labour (Standards) Code
Forestry —		Mines and Technical Surveys —	
1947 59	Eastern Rocky Mountain Forest Conservation	RSC 1952 26	Canada Lands Survey
1952 175	Maritime Marshland Rehabilitation	73	Department of Mines and Technical Surveys
1960 41	Department of Forestry	95, 318	Emergency Gold Mining Assistance
1961 30	Agricultural Rehabilitation and Development	102	Explosives
Industry —		National Defence —	
1960-61 24	National Design Council	RSC 1952 184	National Defence
1963 3	Department of Industry	283	Visiting Forces (British Commonwealth)
Insurance —		284	Visiting Forces (North Atlantic Treaty)
RSC 1952 31	Canadian and British Insurance Companies	1959 21	Canadian Forces Superannuation
49	Civil Service Insurance		
70	Department of Insurance		
100	Excise Tax (Part I)		
125	Foreign Insurance Companies		
170	Loan Companies		
251	Small Loans		
272	Trust Companies		
296	Winding-up (Part III)		
1952-53 28	Co-operative Credit Associations		
Justice —			
1940 43	Treachery		
RSC 1952 1	Admiralty		
14	Bankruptcy		
28	Canada Prize		

List of the Principal Acts of Parliament Administered by Departments of the Government of Canada—continued

Department, Year and Chapter of Statute	Name of Act	Department, Year and Chapter of Statute	Name of Act
National Revenue— concluded <i>Administered in Part—concl.</i>		Northern Affairs and National Resources— concluded	
RSC 1952 168	Live Stock Pedigree	1952-53 53	Yukon
169	Live Stock Shipping	1953-54 4	Department of Northern Affairs and National Resources
172	Maple Products Industry	1955 47	International River Improvements
177	Meat and Canned Foods	1957-58 25	Atlantic Provinces Power Development
187	National Harbours Board		
193	Navigable Waters Protection		
194	Northern Pacific Halibut Fishery (Convention)		
209	Pest Control Products	Post Office—	
212	Post Office	RSC 1952 212	Post Office
215	Precious Metals Marking		
220	Proprietary or Patent Medicine	Public Archives—	
231	Quarantine	RSC 1952 163	Laurier House
233	Radio	222	Public Archives
248	Seeds		
271	Transport	Public Works—	
292	Weights and Measures	RSC 1952 91	Dry Docks Subsidies
295	White Phosphorous Matches	114	Ferries
1952-53 15	Coastal Fisheries Protection	135	Government Harbours and Piers (Sect. 5)
38	Food and Drugs	138	Government Works Tolls
1953-54 27	Export and Import Permits	161	Kingsmere Park (in part)
51	Criminal Code	163	Laurier House
1955 27	Canada Agricultural Products Standards	187	National Harbours Board (Sect. 38, in part)
36	Meat Inspection	193	Navigable Waters Protection (Part I)
1957 31	Pacific Fur Seals Convention	216	Prime Minister's Residence
1960-61 35	Narcotic Control	228	Public Works
1965 51	Canada Pension Plan	234	Railway (Sect. 251)
		269	Trans-Canada Highway
		324	Government Property Traffic (in part)
Northern Affairs and National Resources—		1959 46	National Energy Board (Sect. 76)
1908 57, 58	National Battlefields at Quebec		
1927 51	Respecting certain debts due the Crown	Secretary of State—	
RSC 1927 87	Seed Grain	1929 55	Reparation Payment
88	Seed Grain Sureties	1947 24	Trading with the Enemy (Transi- tional Powers)
116	Railway Belt	1948 71	Italy, Romania, Hungary and Finland Treaties of Peace
124	Manitoba Supplementary Provisions	RSC 1952 18	Boards of Trade
180	Saskatchewan and Alberta Roads	30	Canada Temperance
211	Railway Belt Water	53	Companies
1928 32	Lac Seul Conservation	54	Companies Creditors Arrangement
1930 3	Alberta Natural Resources	55	Copyright
29	Manitoba Natural Resources	62	Defence Production (Sect. 7)
37	Railway Belt and Peace River Block	77	Department of State
41	Saskatchewan Natural Resources	150	Industrial Design and Union Label
1932 35	Refunds (Natural Resources)	203	Patent
55	Waterton-Glacier International Peace Park	208	Pension Fund Societies
1939 33	Rainy Lake Watershed Emergency Control	223	Public Documents
RSC 1952 90	Dominion Water Power	225	Public Officers
128	Game Export	234	Railway (Sects. 139, 141 and 148)
162	Land Titles	235	Regulations
179	Migratory Birds Convention	247	Seals
189	National Parks	265	Timber Marking
192	National Wildlife Week	267	Trade Unions
196 Northern Canada Power Commis- sion		270	Translation Bureau
224	Public Lands Grants	295	White Phosphorous Matches (Sect. 6)
263	Territorial Lands	307	Canada Evidence (Sect. 31)
300	Yukon Placer Mining	1952-53 49	Trade Marks
301	Yukon Quartz Mining	1953-54 4	Department of Northern Affairs and National Resources (Sect. 9)
331	Northwest Territories		
1952-53 21	Canada Water Conservation Assist- ance		
39	Historic Sites and Monuments		

List of the Principal Acts of Parliament Administered by Departments of the Government of Canada—concluded

Department, Year and Chapter of Statute	Name of Act	Department, Year and Chapter of Statute	Name of Act
Trade and Commerce—		Transport—	
RSC 1952 44	Canadian Wheat Board	RSC 1952 174	Maritime Freight Rates
78	Department of Trade and Commerce	187	National Harbours Board
94	Electricity Inspection	193	Navigable Waters Protection
103	Export	202	Passenger Tickets
105	Export Credits Insurance	233	Radio
129	Gas Inspection	234	Railway
191	National Trade Mark and True Labelling	242	St. Lawrence Seaway Authority
215	Precious Metals Marking	262	Telegraphs
257	Statistics	268	Trans-Canada Air Lines (Air Canada by 1964, c. 2)
292	Weights and Measures	271	Transport (Board of Transport Commissioners)
1953-54 27	Export and Import Permits	276	United States Wreckers
1956 2	Temporary Wheat Reserves	291	Water Carriage of Goods
1957-58 2	Prairie Grain Advance Payments	311	Canadian National Railways Capital Revision
1959 46	National Energy Board	1955 15	Foreign Aircraft Third Party Damage
1962 26	Corporations and Labour Unions Returns	29	Canadian National Railways
1962-63 12	Canadian Corporation for the 1967 World Exhibition	31	Canadian National Refunding
		1957 38	Windsor Harbour Commissioners
		1958 34	Lakehead Harbour Commissioners
		1959 27	Freight Rates Reduction Act
		1960 19	Nanaimo Harbour Commissioners
		21	Oshawa Harbour Commissioners
		26	Canadian National Toronto Terminals
		1962 10	Atlantic Development Board
		1963 39	Ontario Harbours Agreement
		1964 6	Blue Water Bridge Authority
		32	Harbour Commissions
Transport—		Veterans Affairs—	
	Auditors for National Railways (Annual)	1920 54	Returned Soldiers' Insurance (as amended)
	Canadian National Railways Financing and Guarantee (Annual)	RSC 1927 188	Soldier Settlement (as amended)
	Intercolonial Railway and Prince Edward Island Railway Employees Provident Fund	RSC 1952 8	Allied Veterans Benefits
1907 22	Meaford Harbour	51, 312	Civilian War Pensions and Allowances (amended 1962, c. 11) (Sects. I to X, Canadian Pension Commission); (Sect. XI, War Veterans Allowance Board)
1908 46	Toronto Harbour Commissioners	80	Department of Veterans Affairs
1911 26	Winnipeg and St. Boniface Harbour Commissioners	117	Fire Fighters War Service Benefits
1912 55	Hamilton Harbour Commissioners	207, 332	Pension (amended 1953-54, c. 62; 1957-58, c. 19; 1960-61, c. 10; 1964-65, c. 34) (Canadian Pension Commission)
1913 158	New Westminster Harbour Commissioners	256	Special Operators War Service Benefits
162	North Fraser Harbour Commissioners	258	Supervisors War Service Benefits
1922 50	Trenton Harbour	279, 338	Veterans Insurance (amended 1958, c. 43; 1962, c. 6)
1927 29	Canadian National (West Indies) Steamship Company	280	Veterans' Land (amended 1953-54, c. 66; 1959, c. 37; 1962, c. 29)
1929 12	Canadian National Montreal Terminals	281	Veterans Rehabilitation (amended 1959, c. 17)
48	Northern Alberta Railways	289	War Service Grants (amended 1953-54, c. 46; 1959, c. 18; 1962, c. 7)
1931 19, 20	Beauharnois Light, Heat and Power	297	Women's Royal Naval Services and the South African Military Nursing Service (Benefits)
1940 20	Beauharnois Light, Heat and Power	340	War Veterans Allowance (amended 1955, c. 13; 1957-58, c. 7; 1960, c. 36; 1960-61, c. 39; 1964-65, c. 34) (War Veterans Allowance Board)
1947 26	Beauharnois Light, Heat and Power	1952-53 27	Children of War Dead (Education Assistance) (amended 1953-54, c. 2; 1958, c. 25; 1962, c. 10)
42	Port Alberni Harbour Commissioners	1953-54 65	Veterans Benefit (amended 1955, c. 43)
1952 34	Belleville Harbour Commissioners		
RSC 1952 2, 302	Aeronautics		
16	Bills of Lading		
20	Bridges		
29	Canada Shipping		
38	Canadian Maritime Commission		
39	Canadian National - Canadian Pacific		
42	Canadian Overseas Telecommunication Corporation		
43	Canadian Vessel Construction Assistance		
45	Carriage by Air		
79	Department of Transport		
135	Government Harbours and Piers		
136	Government Railways		
137	Government Vessels Discipline		
157	International Rapids Power Development		
169	Live Stock Shipping		

PART IV.—FEDERAL AND PROVINCIAL GOVERNMENT EMPLOYMENT

Federal Government Employment

The Civil Service Commission.—As the central personnel agency of the Federal Government, the Civil Service Commission is the custodian of the merit system in the Civil Service of Canada and is also concerned with many other aspects of personnel administration. The Civil Service Commission was established in 1908 under the provisions of the Civil Service Amendment Act of that year which introduced the principle of selection by order of merit for positions in Ottawa. Prior to that, a Board of Examiners (established in 1882) held qualifying examinations for appointment to the service but it did not have the power to appoint. In 1918, the Civil Service Amendment Act was superseded by a Civil Service Act which had the effect, among other things, of bringing positions outside of Ottawa, as well as those at headquarters, under the jurisdiction of the Act and consequently the Commission. This Act served Canada and the civil service well for over four decades until with the passage of time it, too, was in need of substantial amendment. This was accomplished through a new Civil Service Act which received Royal Assent in September 1961 and which came into effect on Apr. 1, 1962.

The new Act applies to about 138,000 employees in all the departments and certain agencies of government and this constitutes the 'civil service' within the legal meaning of that term. The 'public service' is defined as those departments and agencies listed in Schedule A of the Public Service Superannuation Act which embrace about 190,000 employees including the 138,000 under the Civil Service Act and Schedule A of the Financial Administration Act. This definition of public service does not include certain Crown corporations—for example, the Canadian Broadcasting Corporation, the Central Mortgage and Housing Corporation, the Canadian National Railways and Air Canada. Agencies outside the civil service make their own arrangements, in accordance with various statutes, for the selection and employment of staff.

Recruitment.—The recruitment of civil servants under the Civil Service Act is conducted by means of open competitive examinations through which every citizen has the opportunity to compete for positions in the service of his country. Examinations are held periodically as staff requirements of the civil service dictate. Ordinarily, any Canadian citizen may apply for headquarters positions at Ottawa but applicants for local positions must normally be residents of the locality in which the vacancy occurs. Competitive examinations are announced through the press and through posters displayed on the public notice boards of the larger post offices, offices of the National Employment Service, offices of the Civil Service Commission and elsewhere. The examinations may be written, oral, a demonstration of skill, or any combination of these.

The names of persons successful in civil service examinations, arranged in order of rank, are recorded on eligible lists. Examination results are formally announced by publication in the *Canada Gazette* and each candidate—successful or unsuccessful—is advised of his standing. Appointments are made as required from the eligible lists which usually remain valid for one year.

The rank of the various successful candidates on eligible lists is influenced by the veterans' preference. The preference is limited largely, in accordance with its definition by law, to members of the Armed Forces who have served overseas in World Wars I or II or in the Korean theatre of operations. The highest order of preference is the disability preference accorded to pensioners of the Armed Forces.

The operations of the Civil Service Commission are decentralized to a considerable degree and the Commission now has ten district offices and six sub-offices across the country. These offices have a significant measure of autonomy enabling them to give quick and efficient service to the field agencies of departments which comprise almost three quarters of the civil service.

Each year the Civil Service Commission conducts about 10,000 competitions, receives about 250,000 applications and makes about 23,000 appointments, mainly to offset the turnover occasioned by deaths, retirements, resignations and the other changes. One feature of its recruiting program is the annual selection of 600 or more university graduates. There are some 10,000 university graduates in the civil service and, of course, many more in agencies and corporations not under the Civil Service Act.

Promotion.—It is a prime feature of the Civil Service Act to create a career service. The result is that promotion, like entrance, is based on merit and a sound promotion system is in operation. Promotion competitions are of two kinds, inter-departmental and departmental. The former are open to employees of all departments and agencies and are conducted by the Civil Service Commission. The latter, the departmental competitions, are restricted to employees of one department or a portion of a department and are conducted by the departments themselves subject to the provisions of the Act and its Regulations. The Commission maintains liaison with departments to ensure this and to advise departments on administration in this area. It is also provided in the Act that persons employed in the public service outside the civil service, and members of the Armed Forces and the Royal Canadian Mounted Police, may also be considered in promotion competitions where it is thought necessary to do so to attract persons with a high level of skill or ability to positions in the civil service. Each year approximately 6,000 promotion competitions are conducted and about 20,000 employees are promoted, including 5,500 reclassifications. For those employees who feel that their qualifications have not been properly assessed, appeals are conducted under the jurisdiction of the Commission.

Position Classification.—Provision is made in the Civil Service Act for the classifying of positions in the civil service. Positions with like duties and responsibilities are classified alike and remunerated equally; each has a title, a set of tasks or duties which are proper to it in the organization in which it occurs and, arising out of these duties, a set of qualifications appropriate for their performance. Positions with duties of a similar kind are grouped together under a common title to form a class and grades within the class reflect the level of responsibility. There are some 1,500 classes and grades in the civil service and the Commission is constantly reviewing them to ensure that the specifications are accurate. Position classification is a mainspring in the Commission's primary function of recruitment, involving as it does the fixing of standards of qualification for each class of position.

Salary Determination.—It is also a responsibility of the Civil Service Commission to recommend to the Governor in Council rates of pay for each class and grade in the civil service. In order that its recommendations may be soundly based, the Commission has established a Pay Research Bureau which provides objective information on compensation and working conditions for various occupations in government, business and industry. These data are studied in relation to comparable classes in the civil service and in combination with other relevant factors—such as the need to recruit and retain sufficient staff,

and in the light of the relationship of one class to another—and after this process is complete a recommendation is submitted to the Governor in Council for consideration. The Governor in Council also fixes the salaries for those employees who are not under the Civil Service Act.

Organization and Methods.—In recent years there has been an increasing awareness of the extent to which economical administration depends on the adoption of modern management techniques and devices. To meet this need the Commission has created a Management Analysis Division and an Organization Division to study problems of management in collaboration with officials directly responsible for major areas of administration. These Divisions afford practical assistance to departments and other agencies of the Government through the systematic examination of structures, operations, procedures and work methods. Their facilities are offered free of charge to all departments.

Staff Training.—In 1947 the Commission set up a Staff Development and Training Division to promote and guide a systematic service-wide training scheme. The training scheme sponsored by the Commission is a joint venture undertaken in co-operation with the various departments, most of which have parallel training divisions. The Commission's Staff Development and Training Division is primarily a co-ordinating agency. It promotes and organizes training activities, trains departmental instructors in the presentation of courses, prepares and gives certain courses of general application to all departments, publishes booklets and other training aids, assists departments in developing training to meet specialized needs and acts as a general clearing-house for the exchange of information on training matters.

Employee Relations.—The Civil Service Act confers on appropriate staff associations the right to be consulted on matters of remuneration and conditions of employment. This consultation may be initiated by either the official or staff sides and may take three forms. On questions of remuneration, which include certain allowances as well as pay, the consultation takes place between the associations and the Minister of Finance or such members of the public service as he may designate and this may, of course, include members of the Commission. On terms and conditions of employment as enumerated in Sect. 68 (1) of the Civil Service Act (which are mainly those with a fiscal effect, such as leave), the consultation takes place between the associations and the Commission and such members of the public service as the Minister of Finance may designate. On those terms and conditions of employment that come within the exclusive jurisdiction of the Commission, the consultation takes place between the associations and the Commission alone. This form of tripartite consultation was introduced on Apr. 1, 1962 when the new Civil Service Act came into force and is designed to be consistent with the distribution of authority in the Act.

Statistics of Federal Government Employment.*—The current monthly survey of Federal Government employment, started in 1952, covers all employees of the Government of Canada; employees in this sense exclude the Governor General and Lieutenant-Governors, Ministers of the Crown and Members of Parliament, judges, persons under contract and members of the Armed Forces, but include Force members of the Royal Canadian Mounted Police. The survey is divided into two main categories: (1) depart-

* Prepared in the Public Finance and Transportation Division, Dominion Bureau of Statistics.

mental branches, services and corporations, and (2) agency and proprietary corporations and other agencies. Table 1 combines the two groups; Tables 2 to 6 cover employees in the first category and Table 7 covers employees in the second category.

1.—Total Federal Government Employees, by Province, as at Mar. 31, 1964, and Earnings for the Year Ended Mar. 31, 1964

Item and Province or Territory	Departments	Departmental Corporations	Agency Corporations	Proprietary Corporations	Other Agencies	Total
	No.	No.	No.	No.	No.	No.
Employees—						
Newfoundland.....	3,882	214	—	5,901	11	10,008
Prince Edward Island.	1,154	49	—	921	—	2,124
Nova Scotia.....	12,965	412	356	5,360	46	19,139
New Brunswick.....	6,389	640	105	6,910	37	14,081
Quebec.....	29,820	3,137	2,714	28,785	587	65,043
Ontario.....	81,187	7,323	4,567	33,495	1,106	127,678
Manitoba.....	8,981	668	57	13,099	612	23,417
Saskatchewan.....	5,997	421	25	4,217	34	10,694
Alberta.....	12,292	556	56	6,491	88	19,483
British Columbia....	18,759	1,217	174	5,988	79	26,217
Yukon and Northwest Territories ¹	2,757	8	169 ¹	87 ¹		3,021
Abroad.....	3,052	20	8	8,665	10	11,755
Totals, Employees.....	187,235	14,665	8,231	119,919	2,610	332,660
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Totals, Earnings.....	867,139	65,280	46,705	640,790	11,231	1,631,145

¹ In addition, approximately 200 agency and proprietary corporation and other agency employees are included with those of other provinces.

Departmental Branches, Services and Corporations.—The salaries of employees in this group are paid from the Consolidated Revenue Fund. Definitions of classifications are as follows. "Salaried" employees include all persons paid on the basis of an annual salary rate with the exception of ships' officers who, though paid an annual salary rate, are subject to special treatment under the regulations made pertaining to the Financial Administration Act. The salaried staff are employed in departmental branches, services and corporations which are subject to regulation by the Treasury Board and for which the positions are outlined in the *Estimates of Canada*, or are established by means of supplementary Treasury Board Minutes. Thus, this category of employees includes persons subject to the provisions of the Civil Service Act plus salaried persons employed on the staffs of Cabinet Ministers and appointed by statute or by Order in Council, and also the salaried staffs of certain administrative branches of the Government that do not fall under the jurisdiction of the Civil Service Act.

"Prevailing Rate" employees are those who occupy continuing positions that are subject to prevailing rate regulations and are therefore paid on the basis of standard wage rates for similar work in the area in which the individual is employed. Regulations made under authority of the Financial Administration Act govern the third group entitled "Ships' Officers and Crews".

These three groups comprise what may be called the "regular" employees of the government service. "Casuals and Others" are principally persons employed on a non-continuing basis.

2.—Employees in Departmental Branches, Services and Corporations of the Federal Government, by Province and Sex, as at Mar. 31, 1964

NOTE.—Excludes agency and proprietary corporations and other agencies, figures for which are given in Table 7.

Province or Territory		Salaried	Pre- vailing Rate ¹	Ships' Officers and Crews	Total ¹	Casuals and Others ¹
		No.	No.	No.	No.	No.
Newfoundland.....	T.	2,855	444	227	3,526	570
	M.	2,531	367	227	3,125	575
	F.	324	56	—	380	32
Prince Edward Island.....	T.	766	167	106	1,039	164
	M.	647	132	106	885	124
	F.	119	23	—	142	9
Nova Scotia.....	T.	7,998	2,705	1,022	11,725	1,652
	M.	6,232	2,338	1,022	9,592	1,323
	F.	1,760	268	—	2,028	81
New Brunswick.....	T.	5,389	872	150	6,411	618
	M.	4,343	665	150	5,158	427
	F.	1,046	177	—	1,223	161
Quebec.....	T.	26,382	3,657	636	30,675	2,282
	M.	20,532	2,932	636	24,100	1,709
	F.	5,800	719	—	6,519	569
Ontario.....	T.	78,376	6,566	190	85,132	3,378
	M.	63,859	4,335	187	68,381	2,071
	F.	24,517	2,191	3	26,711	1,293
Manitoba.....	T.	7,806	1,174	14	8,994	655
	M.	5,911	711	14	6,636	402
	F.	1,895	359	—	2,254	225
Saskatchewan.....	T.	5,603	569	—	6,172	246
	M.	4,581	412	—	4,993	151
	F.	1,022	105	—	1,127	93
Alberta.....	T.	10,047	2,024	10	12,081	767
	M.	7,653	1,200	10	8,863	480
	F.	2,394	372	—	2,766	242
British Columbia.....	T.	15,311	2,584	881	18,776	1,200
	M.	11,605	1,352	881	14,338	943
	F.	3,706	551	—	4,257	226
Yukon and Northwest Territories.....	T.	1,383	784	19	2,186	579
	M.	1,068	556	19	1,443	122
	F.	315	89	—	404	56
Abroad.....	T.	2,822	—	—	2,822	250
	M.	1,568	—	—	1,568	118
	F.	1,254	—	—	1,254	132
Canada.....	T.	161,738	21,546	3,255	189,539	12,361
	M.	120,586	15,300	3,252	139,138	8,245
	F.	44,132	4,910	3	49,065	3,124

¹ Certain provincial totals include employees undistributed as to sex.

3.—Employees in Departmental Branches, Services and Corporations and Earnings, by Month, April 1963 to March 1964

NOTE.—Excludes agency and proprietary corporations and other agencies, figures for which are given in Table 7.

Month	Salaried	Prevailing Rate	Ships' Officers and Crews	Total	Casuals and Others
EMPLOYEES AT THE END OF EACH MONTH					
	No.	No.	No.	No.	No.
April 1963.....	162,596	23,303	3,125	189,024	10,725
May.....	164,253	24,131	3,272	191,656	11,723
June.....	164,490	25,513	3,349	193,352	12,986
July.....	164,674	26,171	3,454	194,299	14,566
August.....	164,208	25,346	3,549	193,103	13,486
September.....	163,284	23,415	3,556	190,255	12,783
October.....	163,487	22,707	3,545	189,739	12,600
November.....	163,667	22,439	3,470	189,576	12,489
December.....	164,195	22,210	3,325	189,730	12,278
January 1964.....	164,492	21,737	3,212	189,441	12,352
February.....	164,424	21,668	3,152	189,244	12,432
March.....	164,738	21,546	3,255	189,539	12,361
REGULAR EARNINGS					
	\$'000	\$'000	\$'000	\$'000	\$'000
April 1963.....	61,688	6,745	1,070	69,503	2,844
May.....	62,179	7,288	1,044	70,511	3,337
June.....	62,385	6,800	1,061	70,246	3,325
July.....	63,818	7,777	1,085	72,681	4,090
August.....	63,983	7,414	1,135	72,535	3,928
September.....	63,734	6,786	1,104	71,624	3,575
October.....	64,078	7,219	1,138	72,435	3,764
November.....	64,200	6,558	1,092	71,849	3,370
December.....	64,422	6,786	1,074	72,283	3,446
January 1964.....	64,697	6,887	1,043	72,627	3,572
February.....	64,619	6,255	1,027	71,900	3,313
March.....	64,868	6,656	1,062	72,586	3,459
OVERTIME PAYMENTS REPORTED					
	\$'000	\$'000	\$'000	\$'000	\$'000
April 1963.....	733	155	352	1,240	25
May.....	965	188	89	1,242	37
June.....	576	243	128	947	61
July.....	478	285	128	891	94
August.....	571	218	160	949	104
September.....	523	278	154	955	80
October.....	711	269	144	1,123	64
November.....	740	281	125	1,146	52
December.....	1,190	306	148	1,644	36
January 1964.....	1,174	277	69	1,520	35
February.....	1,352	251	89	1,692	29
March.....	456	266	117	840	25
RETROACTIVE PAYMENTS REPORTED					
	\$'000	\$'000	\$'000	\$'000	\$'000
April 1963.....	—	20	1	20	7
May.....	2	6	—	8	4
June.....	—	14	13	27	11
July.....	12,161 ¹	6	—	12,167	8
August.....	117	6	—	124	19
September.....	26	15	17	58	10
October.....	2	63	6	72	15
November.....	4	65	8	77	10
December.....	40	60	—	100	6
January 1964.....	1	11	15	26	4
February.....	1	66	46	113	1
March.....	1,772 ²	52	60	1,883	16

¹ Includes retroactive payments resulting from salary increases to certain salaried groups.

² Includes retroactive payments resulting from a salary revision for professional staff.

Table 4 presents metropolitan area data on staff employed in departmental branches, services and corporations. The 17 metropolitan areas listed are those defined for purposes of the 1961 Census of population, with subsequent amendments (annexations, etc.) considered. Included are employees who work within the boundaries of the metropolitan areas; employees residing within those areas but working outside are excluded.

4.—Federal Employees in Metropolitan Areas, by Sex, as at Sept. 30, 1964 and Earnings for September 1964

Area	Persons Employed at Sept. 30, 1964					Regular Earnings September 1964	
	Male	Female	Undis- tributed	Total	P.C. of Grand Total	Total	P.C. of Grand Total
	No.	No.	No.	No.		\$'000	
Metropolitan Areas	96,627	38,912	73	135,612	66.8	54,066	68.5
Ottawa, Ont.—Hull, Que.....	31,019	17,169	2	48,190	23.7	21,528	27.3
Montreal, Que.....	14,844	4,368	—	19,212	9.5	7,051	8.9
Toronto, Ont.....	11,596	4,583	—	16,179	8.0	5,840	7.4
Halifax, N.S.....	7,468	1,650	52	9,170	4.5	3,305	4.2
Vancouver, B.C.....	6,393	2,219	1	8,613	4.2	3,411	4.3
Winnipeg, Man.....	4,563	1,751	—	6,314	3.1	2,424	3.1
Victoria, B.C.....	4,119	1,098	2	5,219	2.6	2,052	2.6
Edmonton, Alta.....	3,591	1,553	—	5,144	2.5	1,937	2.5
Quebec, Que.....	2,656	896	1	3,553	1.7	1,294	1.6
London, Ont.....	2,556	1,268	—	3,824	1.9	1,339	1.7
Calgary, Alta.....	2,207	740	2	2,949	1.5	1,113	1.4
St. John's, Nfld.....	1,633	302	13	1,948	1.0	724	0.9
Saint John, N.B.....	1,136	484	—	1,620	0.8	600	0.8
Hamilton, Ont.....	1,134	388	—	1,522	0.7	596	0.7
Windsor, Ont.....	998	200	—	1,198	0.6	472	0.6
Kitchener—Waterloo, Ont.....	497	138	—	635	0.3	251	0.3
Sudbury, Ont.....	217	105	—	322	0.2	129	0.2
Non-metropolitan Areas	53,493	11,332	2,622	67,447	33.2	24,788	31.5
In Canada.....	51,789	9,948	2,622	64,359	31.7	23,621	30.0
Outside Canada.....	1,704	1,384	—	3,088	1.5	1,167	1.5
Grand Totals	150,120	50,244	2,695	203,059	100.0	78,854	100.0
Proportion in—	p.c.	p.c.	p.c.	p.c.		p.c.	
Metropolitan Areas.....	64.4	77.4	2.7	66.8	...	68.5	...
Non-metropolitan Areas.....	35.6	22.6	97.3	33.2	...	31.5	...
In Canada.....	34.6	19.8	97.3	31.7	...	30.0	...
Outside Canada.....	1.1	2.8	—	1.5	...	1.5	...
Grand Totals	100.0	100.0	100.0	100.0	...	100.0	...

Table 5 presents statistics for departmental branches, services and corporations on the basis of a classification by function. The purpose of such classification is to supply a means of studying the operation of government without the complication that results from differences in administrative establishment. This analysis is useful in three ways. First, it permits a detailed study of employment by the Government of Canada according to the main purposes or functions and, since these functions are not subject to the periodic changes that alter the administrative structure of the Government, it is possible to develop a statistical series which, with minor exceptions, is consistent over an extended period of time. Secondly, since differences in administrative establishment are eliminated, it is possible to make meaningful comparisons between Federal Government expenditures on employment and similar expenditures by other levels of government. Thirdly, an analysis of the relationship between expenditures on employment and total expenditures may be made with regard to each function.

Table 6 is an administrative analysis of departmental branches, services and corporations, showing data for these bodies as they were organized at Mar. 31, 1964. Because of periodic changes in the administrative structure of the Government, comparisons over a period of years should be based on the classification by function given in Table 5. Although most salaried staffs fluctuate little during the year, the Taxation Branch of the Department of National Revenue increases its staff considerably in March and April because of the heavy flow of income tax returns during that period, the Legislation branches employ extra staff during each session of Parliament, and several departments employ considerable numbers of students in the summer months. Prevailing rate and other types of employment generally reach a peak in numbers during summer and decline to a lower level in winter.

5.—Federal Government Employees as at Mar. 31, 1964, and Regular Earnings for the Year Ended Mar. 31, 1964, classified by Function

NOTE.—Excludes agency and proprietary corporations and other agencies; figures for which are given in summary form in Table 7.

Function	Salaried			Prevailing Rate			Ships' Officers and Crews			Totals			Casuals and Others		
	Em- ployees	Regular Earnings	\$	Em- ployees	Regular Earnings	\$	Em- ployees	Regular Earnings	\$	Em- ployees	Regular Earnings	\$	Em- ployees	Regular Earnings	\$
	No.			No.			No.			No.			No.		
Defence Services (excl. Armed Forces).....	31,093		135,256,767	12,672		51,191,474	619		2,806,133	44,384		189,254,374	4,919		21,688,534
Veterans Pensions and Other Benefits.....	11,023		46,609,838	1,962		5,134,638	—		—	12,985		51,744,476	—		—
General Government.....	30,162		137,318,735	2,665		8,957,965	—		724	32,827		146,177,424	327		773,825
Executive and administrative.....	26,901		127,055,893	2,659		8,955,749	—		724	29,560		137,007,366	323		697,770
Legislative.....	1,044		4,001,734	0		7,216	—		—	3,050		4,008,980	—		76,055
Research, planning and statistics.....	2,217		10,161,108	—		—	—		—	2,217		10,161,108	—		—
Protection of Persons and Property.....	12,855		62,655,821	92		309,794	—		—	12,947		62,965,615	17		50,315
Law enforcement.....	2,212		1,240,445	—		—	—		—	2,212		1,240,445	—		—
Corrections.....	2,076		12,688,033	—		—	—		—	2,076		12,688,033	—		—
Police protection.....	8,505		41,084,417	92		309,794	—		—	8,597		41,394,211	—		—
Other.....	1,102		6,682,926	—		—	—		—	1,102		6,682,926	—		—
Transportation and Communications.....	10,070		53,238,554	1,010		4,091,955	2,229		8,359,223	13,319		65,689,732	1,281		5,035,900
Airways.....	3,852		21,580,432	355		1,681,120	—		—	4,407		23,680,582	454		2,011,065
Highways, roads and bridges.....	917		1,451,832	123		726,808	—		—	342		2,247,698	12		59,716
Railways.....	163		1,115,392	—		—	—		—	363		1,115,392	—		—
Telephone, telegraph and wireless.....	2,692		12,600,885	15		56,227	—		—	2,696		13,667,112	—		309,545
Waterways.....	2,683		12,581,443	315		1,827,800	—		—	5,907		22,218,466	769		2,655,574
Other.....	564		2,770,482	—		—	—		—	564		2,770,482	—		—
Health.....	3,178		15,880,654	498		1,065,005	3		9,417	3,679		16,975,076	315		813,848
General.....	286		1,906,393	4		24,003	—		—	840		2,010,942	—		3,890
Public health.....	738		4,481,366	51		163,288	—		—	841		4,646,684	20		32,518
Hospital care.....	1,999		9,493,249	443		904,814	—		—	2,445		10,317,460	295		777,440
Social Welfare.....	11,091		49,255,904	12		56,708	5		19,144	11,108		49,321,756	1,763		2,359,264
Aid to aged persons.....	24		139,092	—		—	—		—	24		139,092	—		—
Family allowances.....	691		2,598,594	—		—	—		—	691		2,598,594	—		—

Labour	423	2,238,537	—	—	—	—	—	423	2,238,537	26	50,999
National employment and unemployment insurance services.....	8,977	39,200,700	3	12,081	—	—	—	8,980	39,212,781	1,680	2,258,236
Other social welfare.....	976	3,078,341	9	44,627	5	19,144	—	990	3,142,112	57	41,029
Recreational and Cultural Services	1,704	9,446,829	986	5,295,732	—	—	—	2,890	14,652,562	658	2,361,040
Archives, art galleries, museums and libraries.....	336	1,680,470	0	37,383	—	—	—	336	1,726,852	13	32,569
Parks, beaches and other recreational areas.....	612	3,077,168	976	5,168,350	—	—	—	1,988	8,243,885	570	2,119,385
Physical culture.....	6	3,50,115	—	—	—	—	—	9	80,116	—	879
Other.....	747	4,680,149	—	—	—	—	—	747	4,680,149	75	188,507
Education	1,894	9,193,637	19	44,446	—	—	—	1,913	9,238,082	266	216,055
Indian and Eskimo schools and schools in N. W. T.....	1,880	8,989,308	19	44,446	—	—	—	1,879	9,103,754	266	214,247
Universities, colleges and other schools.....	34	194,329	—	—	—	—	—	34	194,329	—	1,808
Natural Resources and Primary Industries	13,626	75,685,825	1,526	6,756,527	359	1,738,183	—	15,541	84,180,545	753	2,715,840
Fish and game.....	1,709	9,612,437	20	250,480	389	1,738,183	—	2,124	16,601,179	80	717,980
Forests.....	7,933	5,780,384	67	343,593	—	—	—	1,000	6,123,977	176	181,891
Land settlement and agriculture.....	7,743	41,678,841	1,000	4,189,991	—	—	—	8,752	45,868,832	86	632,388
Minerals and mines.....	1,492	9,085,092	67	315,198	—	—	—	1,559	9,400,200	—	10
Water resources.....	221	1,358,350	—	18,294	—	—	—	221	1,364,653	10	41,540
Other.....	1,528	8,172,652	357	1,648,962	—	—	—	1,885	9,821,614	401	1,142,041
Trade and Industrial Development	1,280	6,773,782	—	—	—	—	—	1,280	6,773,782	115	372,228
Public Service and Trading Enterprises	145	632,755	—	—	—	—	—	145	632,755	62	159,552
Other	36,617	162,821,356	103	407,773	—	4,879	—	36,720	163,234,008	1,833	5,405,284
Civil defence.....	231	870,185	32	86,668	—	—	—	263	956,853	—	362
International cooperation and assistance.....	126	741,115	—	—	—	—	—	126	741,115	—	—
External Affairs and Citizenship.....	2,019	10,116,828	—	74,760	—	4,879	—	2,044	10,196,467	30	61,673
External Affairs.....	2,110	10,024,392	—	—	—	—	—	2,110	10,024,392	224	194,806
Bullion and coinage.....	294	1,298,420	—	—	—	—	—	294	1,298,420	—	—
Post Office.....	27,041	111,547,214	25	151,066	—	—	—	27,066	111,698,280	988 ²	1,700,356 ²
Other.....	4,796	28,223,202	21	95,279	—	—	—	4,817	28,318,481	591	3,358,087 ²
Grand Totals	164,738 ⁴	764,670,457 ⁴	21,545 ⁵	83,244,616 ⁵	3,255 ⁵	12,937,713 ⁵	—	189,538	860,852,786	12,359	41,948,981 ⁶

¹ Excludes 14,097 employees paid \$29,503,000 from postal revenues.² Excludes Christmas helpers paid \$3,289,000.³ Excludes part-time weather observers paid \$51,000.⁴ Excludes the Governor General and 10 Lieutenant-Governors paid \$170,000; 361 judges, paid \$6,397,000; and 25 Ministers of the Crown, paid \$374,000.⁵ Excludes field parties of the Department of Mines and Technical Surveys—prevailing rate employees paid \$399,000; and ships' officers and crews paid \$914,000.⁶ To avoid revealing particulars relating to individuals, payments of \$2,898 to prevailing rate employees and of \$6,296 to casual employees are excluded from the function detail but included here.

6.—Federal Government Employees as at Mar. 31, 1964, and Regular Earnings for the Year Ended Mar. 31, 1964, classified by Department and Principal Branch or Service

NOTE.—Excludes agency and proprietary corporations and other agencies, figures for which are given in summary form in Table 7.

Department and Branch or Service	Salaried			Prevailing Rate			Ships' Officers and Crews			Totals			Casuals and Others		
	En- ployees	Regular Earnings \$	No.	En- ployees	Regular Earnings \$	No.	En- ployees	Regular Earnings \$	No.	En- ployees	Regular Earnings \$	No.	En- ployees	Regular Earnings \$	No.
Agriculture	7,880	42,269,346	1,009	4,189,991						8,889	46,439,337	145		789,676	
Administration Branch.....	2,375	2,086,807	—	—	—	—	—	—	—	—	—	—	—	—	—
Research Branch.....	2,435	14,430,400	797	3,346,585			—	—	—	3,232	17,777,075	—	—	—	—
Production and Marketing Branch.....	3,245	16,713,342	68	256,147			—	—	—	3,313	16,969,489	20	—	52,131	
Board of Grain Commissioners.....	983	4,571,139	—	2,360			—	—	—	958	4,573,499	78	—	207,951	
Land rehabilitation, irrigation and water storage projects.....	801	4,139,988	144	584,682			—	—	—	945	4,724,670	43	—	335,332	
Special.....	66	327,580	—	—	—	—	—	—	—	66	327,580	4	—	194,262	
Atomic Energy—Atomic Energy Control Board	14	108,192	—	—	—	—	—	—	—	14	108,192	—	—	—	—
Auditor General's Office	156	1,119,735	—	—	—	—	—	—	—	156	1,119,735	—	—	—	—
Board of Broadcast Governors	37	254,044	—	—	—	—	—	—	—	37	254,044	—	—	—	—
Chief Electoral Officer, Office of the	17	89,586	—	—	—	—	—	—	—	17	89,586	—	—	—	—
Citizenship and Immigration	4,245	21,006,890	52	158,439			5	19,144		4,302	21,184,473	353	—	310,474	
Departmental Administration.....	164	876,127	—	—	—	—	—	—	—	164	876,127	1	—	11,125	
Citizenship.....	166	873,698	—	—	—	—	—	—	—	166	873,698	—	—	1,162	
Immigration Branch.....	1,618	8,187,685	24	69,366			—	—	—	1,642	8,257,081	29	—	43,145	
Indian Affairs Branch.....	2,297	11,069,380	28	89,073			5	19,144		2,330	11,177,597	323	—	255,042	
Civil Service Commission	698	4,065,563	—	—	—	—	—	—	—	698	4,065,563	22	—	11,729	
Defence Production¹	1,576	9,098,346	—	—	—	—	—	—	—	1,576	9,098,346	37	—	84,676	
External Affairs	2,227	10,711,054	—	—	—	—	—	—	—	2,227	10,711,054	224	—	194,806	
Departmental Administration.....	818	4,573,431	—	—	—	—	—	—	—	818	4,573,431	—	—	—	—
Representation Abroad ²	1,309	5,571,817	—	—	—	—	—	—	—	1,309	5,571,817	224	—	194,806	
External Aid Office.....	89	400,666	—	—	—	—	—	—	—	89	400,666	—	—	—	—
International Joint Commission.....	11	75,140	—	—	—	—	—	—	—	11	75,140	—	—	—	—
Finance	4,897	21,544,470	—	—	—	—	—	—	—	4,897	21,544,470	134	—	158,630	
General Administration.....	280	1,912,433	—	—	—	—	—	—	—	280	1,912,433	—	—	—	—
Departmental Administration.....	4,253	17,292,385	—	—	—	—	—	—	—	4,253	17,292,385	130	—	155,111	
Comptroller of the Treasury.....	346	2,276,277	—	—	—	—	—	—	—	346	2,276,277	—	—	—	—
Administration of various Acts.....	18	60,425	—	—	—	—	—	—	—	18	60,425	4	—	3,519	
Contingencies and miscellaneous.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Fisheries	1,626	9,104,286	26	250,489			389	1,738,193		2,041	11,092,968	70	—	710,969	
General Services.....	1,065	5,761,698	26	214,243			288	1,665,624		1,779	7,211,595	69	—	648,403	
Special.....	34	153,450	—	36,246			13	47,553		347	2,272,248	1	—	28,983	
Fisheries Research Board of Canada.....	527	3,189,138	—	—	—	—	88	425,017		615	3,614,155	—	—	35,484	

Forestry	933	5,750,384	343,593	—	—	1,000	6,123,977	175	181,055
Departmental Administration.....	125	757,759	36,127	—	—	127	703,886	—	161,631
Forest Research Branch.....	219	1,392,018	249,305	—	—	275	1,641,322	169	19,424
Forest Entomology and Pathology Branch.....	451	2,740,235	11,611	—	—	455	2,751,846	6	—
Forest Products Research Branch.....	138	890,372	40,550	—	—	147	930,922	—	—
Governor General—Office of the Secretary.....	17	75,679	—	—	—	17	75,679	—	—
Insurance.....	100	669,838	—	—	—	100	669,838	—	—
Justice.....	3,378	15,986,660	—	—	—	3,378	15,986,660	17	50,315
Department.....	402	2,318,627	—	—	—	402	2,318,627	—	—
Penitentiaries.....	2,976	13,668,033	—	—	—	2,976	13,668,033	17	50,315
Labour.....	9,612	42,363,853	—	—	—	9,612	42,363,853	1,708	2,323,533
General Administration.....	556	2,787,039	—	—	—	556	2,787,039	16	18,514
Special Services.....	34	87,477	—	—	—	34	87,477	12	16,753
Technical and Vocational Training Assistance.....	34	194,329	—	—	—	34	194,329	—	—
Government Employees Compensation.....	21	94,308	—	—	—	21	94,308	—	—
Unemployment Insurance Commission.....	8,977	39,200,700	—	—	—	8,977	39,200,700	1,680	2,258,236
Legislation.....	1,010	3,834,235	—	—	—	1,016	3,841,451	—	—
The Senate.....	145	593,543	7,216	—	—	145	593,543	—	—
House of Commons.....	831	3,045,104	—	—	—	831	3,045,104	—	—
Library of Parliament.....	34	135,588	7,216	—	—	40	202,804	—	—
Mines and Technical Surveys.....	3,075	17,665,029	304,530	78	385,724	3,217	18,355,283	—	—
Administration Services.....	236	1,280,706	—	—	—	226	1,280,706	—	—
Surveys and Mapping Branch.....	823	4,357,722	—	—	—	823	4,357,722	—	—
Marine Sciences Branch.....	434	2,350,480	—	78	385,724	512	2,736,184	—	—
Geological Survey of Canada.....	696	3,901,282	32,138	—	—	701	3,933,420	—	—
Mines Branch.....	570	3,907,550	272,392	—	—	629	4,179,942	—	—
Geographical Branch.....	99	455,696	—	—	—	99	455,696	—	—
Dominion Observatories.....	175	1,102,182	—	—	—	175	1,102,182	—	—
General.....	38	228,317	—	—	—	38	228,317	—	—
Dominion Coal Board.....	14	81,134	—	—	—	14	81,134	—	—
National Defence (excl. Armed Forces).....	29,517	125,727,442	51,191,474	619	2,806,133	42,808	179,725,049	4,882	21,603,858
Departmental Administration.....	577	3,061,878	44,274	—	—	580	3,106,152	—	—
Inspection Services.....	1,145	6,052,672	150,618	—	—	1,193	6,203,290	—	1,030
Royal Canadian Navy.....	6,157	27,103,788	15,566,342	619	2,806,133	10,246	45,476,263	1,530	7,375,996
Canadian Army.....	10,830	42,190,064	17,554,450	—	—	11,509	59,744,514	1,509	6,916,999
Royal Canadian Air Force.....	8,469	33,686,091	16,628,896	—	—	13,238	50,314,987	1,689	6,684,042
Defence Research and Development.....	2,339	13,632,949	1,246,894	—	—	2,618	14,879,843	1,184	625,791
National Film Board.....	710	4,376,105	—	—	—	710	4,376,105	75	188,507
National Gallery of Canada.....	52	305,264	—	—	—	52	305,264	4	8,356
National Health and Welfare.....	4,036	19,410,591	1,158,312	3	14,296	4,545	20,583,199	315	821,064
Departmental Administration.....	315	1,476,328	14,903	—	—	319	1,491,231	—	3,890
National Health Branch.....	2,914	14,479,964	1,071,888	3	14,296	3,411	15,566,148	315	816,199
Welfare Branch.....	729	2,812,146	—	—	—	729	2,812,146	—	613
General.....	78	642,153	71,521	—	—	86	713,674	—	362

For footnotes, see end of table, p. 155.

6.—Federal Government Employees as at Mar. 31, 1964, and Regular Earnings for the Year Ended Mar. 31, 1964, classified by Department and Principal Branch or Service—concluded

Department and Branch or Service	Salaried			Prevailing Rate		Ships' Officers and Crews		Totals		Casuals and Others	
	Em- ployees	Regular Earnings \$	No.	Em- ployees	Regular Earnings \$	Em- ployees	Regular Earnings \$	Em- ployees	Regular Earnings \$	Em- ployees	Regular Earnings \$
National Research Council including the Medical Research Council.	2,535	15,911,637	—	—	—	—	—	2,535	15,911,637	582	3,210,130
National Revenue.	15,186	71,955,147	10	37,009	724	—	—	15,196	71,992,880	—	1,053
Customs and Excise Divisions.	7,432	36,853,862	10	37,009	724	—	—	7,442	36,881,595	—	1,053
Taxation Division.	7,739	34,993,010	—	—	—	—	—	7,739	34,993,010	—	—
Tax Appeal Board.	15	108,275	—	—	—	—	—	15	108,275	—	—
Northern Affairs and National Resources.	1,993	10,998,300	1,336	6,834,786	—	—	—	3,329	17,833,086	992	3,327,016
Departmental Administration.	175	896,645	—	—	—	—	—	175	896,645	—	—
Northern Co-ordination and Research.	14	88,378	—	—	—	—	—	14	88,378	—	—
National Parks Branch.	695	3,585,697	976	5,168,350	—	—	—	1,671	8,754,047	580	2,126,696
Water Resources Branch.	221	1,356,359	—	8,294	—	—	—	221	1,364,653	10	41,540
Northern Administration Branch.	800	4,538,755	354	1,634,344	—	—	—	1,154	6,173,099	401	1,142,041
National Museum of Canada.	88	532,466	6	23,798	—	—	—	94	556,264	1	16,739
Post Office.	27,041	111,519,832	25	151,066	—	—	—	27,066	111,670,898	988	1,790,356
Departmental Administration.	284	1,463,073	—	—	—	—	—	284	1,463,073	—	—
Operations.	26,328	108,034,331	4	151,066	—	—	—	26,353	108,185,397	988	1,790,356
Transportation.	76	461,692	—	—	—	—	—	76	461,692	—	—
Financial Services.	353	1,560,736	—	—	—	—	—	353	1,560,736	—	—
Privy Council.	276	1,897,902	—	—	—	—	—	276	1,897,902	—	—
Privy Council Office.	111	580,262	—	—	—	—	—	111	580,262	—	—
Prime Minister's Residence.	5	9,153	—	—	—	—	—	5	9,153	—	—
Emergency Measures Organizations.	—	430,979	—	—	—	—	—	—	430,979	—	—
Special.	160	877,508	—	—	—	—	—	160	877,508	—	—
Public Archives and National Library.	196	851,349	—	—	—	—	—	196	851,349	8	27,474
Public Archives.	130	584,921	—	—	—	—	—	130	584,921	8	27,474
National Library.	66	266,428	—	—	—	—	—	66	266,428	—	—
Public Printing and Stationery.	560	2,799,999	1,115	5,008,709	—	—	—	1,675	7,808,708	7	8,961
Public Works.	5,871	24,717,903	1,668	4,688,911	—	—	—	7,770	30,656,669	571	1,509,840
General Administration.	1,504	9,109,569	25	84,609	—	—	—	1,529	9,284,178	5	5,687
Public Buildings Construction and Services.	4,179	14,602,104	1,493	3,763,043	—	—	—	5,672	18,365,237	107	406,236
Harbours and Rivers Engineering Services.	53	232,116	9	57,072	—	—	—	293	1,539,043	400	937,726
Development Engineering Services.	135	684,024	141	784,187	—	—	—	276	1,468,211	59	160,191
Royal Canadian Mounted Police.	8,505	41,064,417	92	309,794	—	—	—	8,597	41,374,211	—	—
Secretary of State.	748	4,127,498	—	—	—	—	—	748	4,127,498	—	—
General Services.	424	2,364,073	—	—	—	—	—	424	2,364,073	—	—
Patent and Copyright Office.	324	1,763,425	—	—	—	—	—	324	1,763,425	—	—

Trade and Commerce.	3,834	19,042,535	3,834	19,042,535	139	416,678
Departmental Administration.....	467	2,991,664	467	2,991,664	—	—
Trade Commissioner Service.....	594	2,984,350	594	2,984,350	—	—
Exhibitions Branch.....	42	245,046	42	245,046	85	340,623
Standards Branch.....	423	2,269,545	423	2,269,545	—	—
Dominion Bureau of Statistics.....	2,139	9,589,328	2,139	9,589,328	54	76,055
Canadian Government Travel Bureau.....	108	469,925	108	469,925	—	—
National Energy Board.....	61	492,677	61	492,677	—	—
Transport.	10,921	57,153,566	10,921	57,298,155	874	4,167,960
Departmental Administration.....	564	2,770,482	564	2,770,482	—	—
Marine Services—						
Marine Services Administration, including Agencies.....	215	1,031,276	215	1,031,276	—	—
Aids to Navigation.....	890	2,940,154	890	3,802,835	109	420,625
Canals.....	325	1,206,678	325	1,738,116	112	265,498
St. Lawrence and Saguenay Rivers Ship Channels.....	34	228,917	34	228,917	4	57,183
Canadian Marine Service.....	66	407,383	66	6,979,404	144	974,542
Marine Regulations.....	302	1,644,066	302	1,732,298	—	—
Railway and Steamship Services.....	6	26,415	6	26,415	—	—
Air Services—						
Air Services Administration.....	409	1,768,038	409	1,768,038	—	—
Construction Services Administration.....	480	3,190,126	480	3,190,126	46	408,939
Civil Aviation Branch.....	2,882	16,253,853	2,882	18,231,865	406	1,597,969
Telecommunications and Electronics Branch.....	2,621	13,600,885	2,621	13,657,112	46	509,545
Meteorological Branch.....	1,857	10,309,540	1,857	10,385,518	77	133,659
Air Transport Board.....	81	487,415	81	487,415	—	—
Board of Transport Commissioners for Canada.....	163	1,115,492	163	1,115,492	—	—
Canadian Maritime Commission.....	26	142,846	26	142,846	—	—
Veterans Affairs.	11,023	46,609,838	11,023	51,741,048	—	—
Departmental Administration.....	459	2,038,888	459	2,038,888	—	—
District Services.....	568	2,425,494	568	2,589,066	—	—
Veterans Welfare Services.....	677	3,234,517	677	3,234,517	—	—
Treatment Services.....	7,996	31,854,286	7,996	36,551,924	—	—
Prosthetic Services.....	210	972,368	210	972,368	—	—
Veterans' Bureau.....	113	620,192	113	620,192	—	—
War Veterans Allowance Board.....	26	158,040	26	158,040	—	—
Canadian Pension Commission.....	328	1,958,836	328	1,958,836	—	—
Soldier Settlement and Veterans' Land Act.....	645	3,347,217	645	3,347,217	—	—
Grand Totals.	164,502 ^a	764,669,091 ^a	164,502 ^a	860,551,420 ^a	12,331 ^a	41,948,981 ^a

¹ Effective Aug. 21, 1963 the printing establishment of the Department of Public Printing and Stationery was transferred to the Department of Defence Production. Later, the office of the Queen's Printer (publisher) was transferred to the jurisdiction of the Secretary of State. The purchasing and stores activities were absorbed by the Department of Defence Production effective Apr. 1, 1964. Details of resulting staff movements are not available and the data are accordingly shown under the respective former Departments.

² Includes North Atlantic Treaty Organization and Canada's Civilian Participation as a member of the International Commissions for Supervision and Control in Indo-China.

³ Excludes field parties—prevailing rate employees paid \$399,000; and ships' officers and crews paid \$914,000.

⁴ Excludes part-time weather observers paid \$29,503,000 from postal revenues.

⁵ Excludes the Governor General and 10 Lieutenant-Governors paid \$170,000; 361 judges paid \$6,397,000, and 25 Ministers of the Crown paid \$374,000.

⁶ Includes Emergency Measures Organization with employee earnings of \$228,032 for salaried employees and \$14,767 for prevailing rate employees; Industry with \$10,179 for salaried employees and \$31,605 for casual employees; Municipal Development and Loan Board with \$12,686 for salaried employees; and the Bureau of Government Organization with \$71,679, not detailed above. In addition, in order to avoid revealing particulars relating to individuals, 21 prevailing rate employees paid \$73,375, and 9 casual employees paid \$20,360 are excluded from the departmental detail but included here.

Agency and Proprietary Corporations and Other Agencies.—The following are organizations owned by the Federal Government as at Mar. 31, 1964. Employees and earnings are shown by month in Table 7; a provincial distribution of employees and a summary of the total payroll in each of the three groups is given in Table 1, p. 146.

Agency Corporations

Atlantic Development Board
Atomic Energy of Canada Limited
Canadian Arsenals Limited
Canadian Commercial Corporation
Canadian Patents and Development Limited*
Centennial Commission†

Crown Assets Disposal Corporation
Defence Construction (1951) Limited
National Battlefields Commission
National Capital Commission
National Harbours Board
Northern Canada Power Commission

Proprietary Corporations

Canadian Broadcasting Corporation
Canadian National Railways
Canadian Overseas Telecommunication Corporation
Central Mortgage and Housing Corporation
Eldorado Aviation Limited
Eldorado Mining and Refining Limited
Export Credits Insurance Corporation

Farm Credit Corporation
Northern Transportation Company Limited
Polymer Corporation Limited
St. Lawrence Seaway Authority
The Seaway International Bridge Corporation Limited
Trans-Canada Air Lines (Air Canada from Jan. 1, 1965)

Other Agencies

Bank of Canada
Canadian Wheat Board
Economic Council of Canada
Industrial Development Bank

Canadian Corporation for the 1967 World Exhibition
Northern Ontario Pipe Line Crown Corporation‡
Office of the Custodian

7.—Employees and Earnings in Agency and Proprietary Corporations and Other Agencies by Month, Years Ended Mar. 31, 1963 and 1964

Month	1962-63		1963-64	
	Employees	Earnings	Employees	Earnings
	No.	\$'000	No.	\$'000
April.....	133,179	53,925	131,137	55,476
May.....	137,504	57,215	135,155	57,998
June.....	142,292	57,833	138,463	56,861
July.....	145,511	60,708	141,611	63,160
August.....	144,574	60,406	141,921	60,081
September.....	142,164	56,497	139,550	58,276
October.....	139,892	58,970	135,991	59,669
November.....	135,054	55,278	134,608	56,559
December.....	132,035	55,274	132,020	60,179
January.....	131,083	55,623	130,974	57,218
February.....	129,635	52,477	130,755	55,064
March.....	129,819	53,770	130,760	57,885

Provincial Government Employment

Table 8 shows gross payrolls (including retroactive pay, salary, adjustments and overtime payments) of provincial government employees, exclusive of those for British Columbia, for the month of March 1965. Provincial government payrolls for the whole of the year ended Mar. 31, 1965 amounted to \$1,082,200,000; payrolls for departmental services employees amounted to \$643,400,000 and accounted for 59.4 p.c. of the total, those of institutions of higher education received \$112,600,000 or 10.4 p.c., those of provincial government enterprises \$313,100,000 or 28.9 p.c., and those of workmen's compensation boards \$13,100,000 or 1.3 p.c. of the total.

The only data available for British Columbia and included in the table are for employees of institutions of higher education.

* Staffed by employees of the National Research Council.

† Excludes the National Conference on Canada's Centennial, which is not an agent of Her Majesty nor part of the Public Service but draws on the staff of the National Centennial Administration.

‡ Staffed by employees of Defence Research Board and Defence Construction (1951) Limited.

8.—Provincial Government Employment and Payrolls, for March 1965

Province or Territory and Item	Departmental Services	Provincial Institutions of Higher Education	Provincial Government Enterprises	Workmen's Compensation Boards	Total
Newfoundland—					
Employees.....No.	7,577	250	308	52	8,187
Gross payrolls.....\$	2,090,765	128,502	98,683	17,163	2,335,113
Prince Edward Island—					
Employees.....No.	1,560	—	59	11	1,630
Gross payrolls.....\$	401,340	—	15,174	2,801	419,315
Nova Scotia—					
Employees.....No.	9,801	108	1,203	66	11,278
Gross payrolls.....\$	2,304,086	50,712	418,726	24,500	2,798,024
New Brunswick—					
Employees.....No.	6,593	785	2,183	59	9,620
Gross payrolls.....\$	2,095,110	268,817	778,090	23,490	3,165,507
Quebec—					
Employees.....No.	43,916	—	13,886	973	58,775
Gross payrolls.....\$	13,311,013	—	8,096,711	281,111	21,688,835
Ontario—					
Employees.....No.	55,173	8,264	19,254	1,349	84,040
Gross payrolls.....\$	20,995,116	3,234,152	9,215,062	546,129	33,990,459
Manitoba—					
Employees.....No.	7,935	3,097	6,606	95	17,733
Gross payrolls.....\$	2,824,483	887,893	2,500,804	33,694	6,246,874
Saskatchewan—					
Employees.....No.	9,875	3,715	6,491	112	20,193
Gross payrolls.....\$	3,748,300	1,343,515	2,616,382	47,864	7,756,061
Alberta—					
Employees.....No.	16,271	6,815	7,243	413	30,742
Gross payrolls.....\$	5,847,484	2,280,147	2,537,122	158,251	10,823,004
British Columbia—					
Employees.....No.	..	6,263	..	..	6,263
Gross payrolls.....\$	..	1,735,250	..	..	1,735,250
Yukon and Northwest Territories— ¹					
Employees.....No.	501	—	51	—	552
Gross payrolls.....\$	232,207	—	17,748	—	249,955
All Provinces and Territories—					
Employees.....No.	159,202	29,297	57,384	3,130	249,013
Gross payrolls.....\$	53,849,904	9,928,988	26,294,502	1,135,003	91,208,397

¹ Departmental services of the Northwest Territories are staffed by employees of the Government of Canada who are included in the statistics under "Federal Government Employment".

PART V.—CANADA'S EXTERNAL RELATIONS*

Canada's Status in the Commonwealth.—The Imperial Conference held in London in 1926 marked a turning point in the history of the then British Empire and was an important step in the evolution from an Empire to a Commonwealth. At the 1926 Conference the self-governing countries, consisting of Britain and the Dominions, were described as being "autonomous countries within the British Empire, equal in status, in no way subordinate one to another in any aspect of their domestic or external affairs, though united by a common allegiance to the Crown, and freely associated as members of the British Commonwealth of Nations". The Governors General of the Dominions were recognized as having in all essential respects the same constitutional position as the Crown in Britain. It was also stated by the Conference that "it is the right of the Government

* Prepared (June 1965) by the Department of External Affairs.

of each Dominion to advise the Crown in all matters relating to its own affairs". Subsequent to this important meeting, Canada's stature and status in the international community continued to grow. Following from the earlier (1923) Imperial Conference, Canada exercised the powers of treaty-making and had established its own diplomatic missions overseas. The Statute of Westminster in 1931 provided more explicit recognition of the principles of equality of status by removing the remaining limitations on the legislative autonomy of Commonwealth countries. As a further development of Canada's independent position, all legal cases started in Canada after Dec. 23, 1949 could no longer be appealed to the Privy Council in London and the Supreme Court of Canada became the final court of appeal for all Canadian legal cases.

Canada's International Status.—The growth of Canada's international status is reflected in the development of the Department of External Affairs. A review of the organization and development of that Department is given in the 1952-53 Year Book, pp. 101-104; a brief outline is given at p. 121 of this volume.

The following Section 1 covers Canadian diplomatic representation abroad and representation of other countries in Canada. Section 2 deals with Canada's main international activities during 1964 and early 1965 with respect specifically to the Commonwealth, the United Nations, and the North Atlantic Treaty Organization. International economic aid programs and Canada's participation in the Organization for Economic Co-operation and Development are covered separately. Although these fields are considered to be the most significant for the purposes of this publication, it should be noted that Canada's activities in other areas are also of importance. The *External Affairs Monthly Bulletin*† covers all activities of the Department.

† Obtainable from the Queen's Printer, Ottawa, \$1 per year.

Section 1.—Diplomatic Representation as at Apr. 30, 1965

NOTE.—Changes in this listing subsequent to Apr. 30, 1965 and names of current representatives are given in *Canadian Representatives Abroad and Representatives of Other Countries in Canada*, published thrice yearly and obtainable from the Queen's Printer, Ottawa, price 35 cents per copy.

1.—Canadian Representation Abroad

Country and Year Representation Established	Present Status of Representative	Address
Argentina.....1941	Ambassador.....	Bartolomé Mitre 478, Buenos Aires
Australia.....1939	High Commissioner.....	Commonwealth Ave., Canberra
Austria.....1952	Ambassador.....	49-51 Obere Donaustrasse, Vienna
Belgium.....1939	Ambassador.....	35, rue de la Science, Brussels
Bolivia.....1961	*Ambassador.....	c/o Canadian Embassy, Edificio Boza, Carabaya 831, Plaza San Martin, Lima, Peru
Brazil.....1941	Ambassador.....	Avenida Presidente Wilson 165, Rio de Janeiro
Britain.....1880	High Commissioner.....	Canada House, Trafalgar Square, London S.W.1
Burma.....1958	*Ambassador.....	c/o Office of the High Commissioner for Canada, 44 Ampang Rd., Kuala Lumpur, Malaysia
Cameroon.....1962	Ambassador.....	Immeuble Soppo Priso, rue Joseph Clerc, Yaounde
Central African Republic.....1962	*Ambassador.....	Immeuble Soppo Priso, rue Joseph Clerc, Yaounde, Cameroon

* Dual accreditation; representative not resident in the country.

1.—Canadian Representation Abroad—continued

Country and Year Representation Established	Present Status of Representative	Address
Ceylon.....1953	High Commissioner.....	6 Gregory's Road, Cinnamon Gardens, Colombo
Chad.....1962	*Ambassador.....	Immeuble Soppo Priso, rue Joseph Clerc, Yaounde, Cameroon
Chile.....1942	Ambassador.....	Agustinas 1225, 5th floor, Santiago
Colombia.....1953	Ambassador.....	Carrera 10, 16-92, 8th floor, Bogota
Congo (Brazzaville).....1962	*Ambassador.....	Immeuble Soppo Priso, rue Joseph Clerc, Yaounde, Cameroon
Congo (Leopoldville).....1962	Chargé d'affaires <i>ad interim</i> and Consul.....	Building C.C.C.I., Boulevard du 30 juin, Leopoldville
Costa Rica.....1961	Ambassador.....	4th floor, Edificio Banco Anglo Costarri- cense Avenida 2y Calle 3, San José
Cuba.....1945	Ambassador.....	Calle 30, No. 518, Esquina a7a, Miramar, Havana
Cyprus.....1961	*High Commissioner.....	15A Heroes St., Nicosia
Czechoslovakia.....1943	Ambassador.....	Mickiewiczova 6, Prague 6
Dahomey.....1962	*Ambassador.....	c/o Office of the High Commissioner for Canada, 4th floor, New Barclays Bank Bldg., 40 Marina Drive, Lagos, Nigeria
Denmark.....1946	Ambassador.....	Prinsesse Maries Allé 2, Copenhagen
Dominican Republic.....1954	Ambassador.....	Edificio Copello, 408 Calle El Conde, Santo Domingo
Ecuador.....1961	Ambassador.....	Edificio I.C.S.A., 120 Diagonal Seminario Menor y Avenida 10 de Agosto, 3rd floor, Quito
El Salvador.....1962	*Ambassador.....	c/o Canadian Embassy, Edificio Banco Anglo Costarricense, Avenida 2y Calle 3, San José, Costa Rica
Finland.....1949	Ambassador.....	Pohjois Esplanadikatu 25B, Helsinki
France.....1928	Ambassador.....	35 avenue Montaigne, Paris VIII
Gabon.....1962	*Ambassador.....	Immeuble Soppo Priso, rue Joseph Clerc, Yaounde, Cameroon
Germany.....1950	Ambassador.....	Zitelmannstrasse 22, Bonn
Ghana.....1957	High Commissioner.....	E 115/3 Independence Ave., Accra
Greece.....1943	Ambassador.....	31, avenue Vassilisis Sofias, Athens 138
Guatemala.....1961	*Ambassador.....	5a Avenida 11-70 Zona I, Guatemala City
Guinea.....1962	*Ambassador.....	c/o Office of the High Commissioner for Canada, E 115/3 Independence Avenue, Accra, Ghana
Haiti.....1954	Ambassador.....	Route du Canapé Vert, St. Louis de Turgeau, Port-au-Prince
Honduras.....1961	*Ambassador.....	c/o Canadian Embassy, 4th floor, Edificio Banco Anglo Costarricense, Avenida 2y Calle 3, San José, Costa Rica
Iceland.....1949	*Ambassador.....	c/o Canadian Embassy, Fridtjof Nansens Plass 5, Oslo, Norway
India.....1947	High Commissioner.....	4 Aurangzeb Road, New Delhi
Indonesia.....1953	Ambassador.....	Djalan Budi Kemuliaan No. 6, Djakarta
Iran.....1958	Ambassador.....	Bezrouke House, corner of Takhte Djamehid Ave. and Forsat St., Tehran
Iraq.....1961	*Ambassador.....	c/o Canadian Embassy, P.O. Box 1610, Tehran, Iran
Ireland.....1940	Ambassador.....	92 Merrion Square West, Dublin 2
Israel.....1953	Ambassador.....	84 Hahashmonaim St., Tel Aviv
Italy.....1947	Ambassador.....	Via G.B. de Rossi 27, Rome
Ivory Coast.....1962	*Ambassador.....	c/o Office of the High Commissioner for Canada, E 115/3 Independence Ave., Accra, Ghana
Jamaica.....1962	High Commissioner.....	32 Duke St., Kingston
Japan.....1929	Ambassador.....	16 Omote-Machi, 3-Chome, Akasaka Mi- nato-ku, Tokyo
Jordan.....1965	*Ambassador.....	c/o Canadian Embassy, Immeuble Alpha, rue Clémenceau, Beirut, Lebanon
Kenya.....1965	*High Commissioner.....	c/o Office of the High Commissioner for Canada, Gailey and Roberts Bldg., Inde- pendence Ave., Dar-es-Salaam, United Republic of Tanzania
Kuwait.....1965	*Ambassador.....	c/o Canadian Embassy, Bezrouke House, corner of Takhte Djamehid Ave. and Forsat St., Tehran, Iran
Lebanon.....1954	Ambassador.....	Immeuble Alpha, rue Clémenceau, Beirut
Luxembourg.....1945	*Ambassador.....	c/o Canadian Embassy, 35 rue de la Science, Brussels, Belgium

* Dual accreditation; representative not resident in the country.

1.—Canadian Representation Abroad—continued

Country and Year Representation Established	Present Status of Representative	Address
Malaysia.....1958	High Commissioner.....	Great Eastern Life Assurance Co. Bldg., 44 Ampang Rd., Kuala Lumpur
Malta.....1964	Ambassador.....	c/o Canadian Embassy, via G.B. de Rossi 27, Rome, Italy
Mexico.....1944	Ambassador.....	Melchor Ocampo 463-7, Mexico 5, D.F.
Morocco.....1962	*Ambassador.....	c/o Canadian Embassy, Edificio España, Plaza de España 2, Madrid, Spain
Netherlands.....1939	Ambassador.....	5 and 7 Sophialaan, The Hague
New Zealand.....1940	High Commissioner.....	I.C.I. Building, Molesworth St., N.I., Wellington
Nicaragua.....1961	*Ambassador.....	c/o Canadian Embassy, 4th floor, Edificio Banco Anglo Costarricense, Avenida 2y Calle 3, San José, Costa Rica
Niger.....1962	*Ambassador.....	c/o Office of the High Commissioner for Canada, 4th floor, New Barclays Bank Bldg., 40 Marina Drive, Lagos, Nigeria
Nigeria.....1960	High Commissioner.....	4th floor, New Barclays Bank Bldg., 40 Marina Drive, Lagos
Norway.....1943	Ambassador.....	Fridtjof Nansens Plass 5, Oslo
Pakistan.....1950	High Commissioner.....	Metropole Hotel, Victoria Road, Karachi
Panama.....1961	*Ambassador.....	c/o Canadian Embassy, 4th floor, Edificio Banco Anglo Costarricense, Avenida 2y Calle 3, San José, Costa Rica
Paraguay.....1962	*Ambassador.....	c/o Canadian Embassy, Bartolomé Mitre 478, Buenos Aires, Argentina
Peru.....1944	Ambassador.....	Edificio Boza, Carabaya 831, Plaza San Martín, Lima
Poland.....1943	Ambassador.....	Ulica Katowicka 31, Saska Kepa, Warsaw
Portugal.....1952	Ambassador.....	Rua Marques da Fronteira No. 8, Lisbon
Republic of Korea.....1964	*Ambassador.....	c/o Canadian Embassy, 16 Omote-Machi, 3-Chome, Akasaka Minato-ku, Tokyo, Japan
Senegal.....1962	*Ambassador.....	c/o Office of the High Commissioner for Canada, 4th floor, New Barclays Bank Bldg., 40 Marina Drive, Lagos, Nigeria
Sierra Leone.....1961	*High Commissioner.....	c/o Office of the High Commissioner for Canada, 4th floor, New Barclays Bank Bldg., 40 Marina Drive, Lagos, Nigeria
South Africa.....1940	Ambassador.....	Suite 66, Standard General Bldg., 238 Vermeulen St., Pretoria
Spain.....1953	Ambassador.....	Edificio España, Plaza de España 2, Madrid
Sudan.....1961	*Ambassador.....	c/o Canadian Embassy, 6 Sharia Roustom Pasha, Garden City, Cairo, United Arab Republic
Sweden.....1947	Ambassador.....	Strandvägen 7-C, Stockholm
Switzerland.....1947	Ambassador.....	88 Kirchenfeldstrasse, Berne
Thailand.....1961	*Ambassador.....	c/o Office of the High Commissioner for Canada, Great Eastern Life Assurance Co. Bldg., 44 Ampang Rd., Kuala Lumpur, Malaysia
Togo.....1962	*Ambassador.....	c/o Office of the High Commissioner for Canada, E 115/3 Independence Ave., Accra, Ghana
Trinidad and Tobago.....1962	High Commissioner.....	72 South Quay, Port-of-Spain, Trinidad
Tunisia.....1961	*Ambassador.....	c/o Canadian Embassy, 88 Kirchenfeldstrasse, Berne, Switzerland
Turkey.....1947	Ambassador.....	Ahmet Agaoglu Sokagi, No. 32, Cankaya, Ankara
Uganda.....1962	*High Commissioner.....	c/o Office of the High Commissioner for Canada, Gailey and Roberts Bldg., Independence Ave., Dar-es-Salaam, United Republic of Tanzania
Union of Soviet Socialist Republics.....1943	Ambassador.....	23 Starokonyushenny Pereulok, Moscow
United Arab Republic.....1954	Ambassador.....	6 Sharia Roustom Pasha, Garden City, Cairo
United Republic of Tanzania.....1962 (1964)	High Commissioner.....	Gailey and Roberts Bldg., Independence Ave., Dar-es-Salaam
United States of America.....1927	Ambassador.....	1746 Massachusetts Ave. N.W., Washington 6, D.C.
Upper Volta.....1962	*Ambassador.....	c/o Office of the High Commissioner for Canada, E 115/3 Independence Ave., Accra, Ghana

* Dual accreditation; representative not resident in the country.

1.—Canadian Representation Abroad—concluded

Country and Year Representation Established	Present Status of Representative	Address
Uruguay.....1952	Ambassador.....	1409 Avenida Agraciada, 7th floor, Montevideo
Venezuela.....1952	Ambassador.....	Avenida La Estancia No. 10, Ciudad Commercial Tamanaco, Caracas
Yugoslavia.....1943	Ambassador.....	Proliterskih Brigada 69, Belgrade
Other Missions		
Canadian Military Mission....1946	Head of Mission.....	Perthshire Block, Olympic Stadium, British Headquarters, Berlin (British Sector)
Delegation of Canada to the International Commission for Supervision and Control in Cambodia.....1954	Acting Commissioner.....	224 Kéo Chéa, Phnom Penh
Delegation of Canada to the International Commission for Supervision and Control in Laos.....1954	Commissioner.....	rue Tat Luang, Vientiane
Delegation of Canada to the International Commission for Supervision and Control in Viet-Nam.....1954	Commissioner.....	Camp Vo Thanh, P.O. Box 220, Saigon
Delegation of Canada to the North Atlantic Council.....1952	Permanent Representative and Ambassador.....	Place du Maréchal de Lattre de Tassigny Paris XVI
Organization for Economic Co- operation and Development 1961	Permanent Representative....	Place du Maréchal de Lattre de Tassigny Paris XVI
Mission of Canada to European Communities.....1960	Head of Mission and Ambassador.....	35, rue de la Science, Brussels 4
Permanent Delegation of Can- ada to the United Nations.1948	Permanent Representative and Ambassador.....	750 Third Ave., New York, N.Y.
Permanent Delegation of Can- ada to European Office of the United Nations.....1948	Permanent Representative and Ambassador.....	16, Parc du Chateau Banquet, Geneva
Canadian Delegation to the Conference of the Eighteen- Nation-Committee on Dis- armament.....1962	Ambassador and Adviser to the Government on Disarmament	2, Parc du Chateau Banquet, Geneva
Permanent Delegation of Can- ada to the United Nations Educational, Scientific and Cultural Organization.....1960	Permanent Delegate.....	1, rue Chanez, Paris XVI
Consulates		
Brazil.....1947	Consul.....	Rua 7 de Abril 252, São Paulo
France.....1965	Consul General.....	Hotel Grand Montré, Bordeaux
".....1965	Consul General.....	24 avenue du Prado, Marseille, Bouche-du- Rhône 62-59-05
Germany.....1956	Consul General.....	Ferdinandstrasse 69, Hamburg
".....1961	Consul.....	4 Duesseldorf 1, Bismarckstrasse 95, Dues- seldorf
Italy.....1963	Consul General.....	Via Pirelli 19, Milan
Republic of the Philippines...1949	Consul General.....	Third Floor, L and S Bldg., 1414 Dewey Blvd., Manila
United States of America.....1948	Consul General.....	607 Boylston St., Boston 16, Mass.
".....1947	Consul General.....	310 South Michigan Ave., Chicago, Ill.
".....1948	Consul.....	1139 Penobscot Bldg., Detroit 26, Mich.
".....1953	Consul General.....	510 W. Sixth St., Los Angeles 14, Cal.
".....1952	Consul General.....	Suite 1710, 225 Baronne St., New Orleans 12, La.
".....1943	Consul General.....	630 Fifth Ave., New York, N.Y.
".....1961	Consul.....	3 Penn Center Plaza, Philadelphia 2, Pa.
".....1948	Consul General.....	333 Montgomery St., San Francisco 4, Cal.
".....1953	Consul General.....	1407 Tower Bldg., 7th Ave., at Olive Way, Seattle 1, Wash.

2.—Representation of Other Countries in Canada

Country and Year Representation Established	Present Status of Representative	Address
Algeria.....1964	Ambassador.....	2200 R Street N.W., Washington, D.C., 20008, U.S.A.
Argentina.....1941	Ambassador.....	211 Stewart St., Ottawa
Australia.....1940	High Commissioner.....	90 Sparks St., Ottawa
Austria.....1952	Ambassador.....	85 Range Road, Ottawa
Belgium.....1937	Ambassador.....	168 Laurier Ave. E., Ottawa
Brazil.....1941	Ambassador.....	305 Stewart St., Ottawa
Britain.....1928	High Commissioner.....	80 Elgin St., Ottawa
Burma.....1958	Ambassador.....	116 Albert St., Ottawa
Cameroon.....1962	Ambassador.....	c/o Embassy of Cameroon, 5420 Colorado Ave. N.W., Washington, D.C. 20011, U.S.A.
Ceylon.....1957	High Commissioner.....	448 Daly Ave., Ottawa
Chile.....1942	Ambassador.....	56 Sparks St., Ottawa
China.....1942	Ambassador.....	201 Wurtemberg St., Ottawa
Colombia.....1953	Ambassador.....	140 Wellington St., Ottawa
Costa Rica.....1963	Ambassador.....	c/o Embassy of Costa Rica, 2112 S St. N.W., Washington, D.C. 20008, U.S.A.
Cuba.....1945	Ambassador.....	112 Sherwood Drive, Ottawa
Cyprus.....1964	High Commissioner.....	c/o Embassy of Cyprus, 2211 R St. N.W., Washington, D.C. 20008, U.S.A.
Czechoslovakia.....1942	Ambassador.....	171 Clemow Ave., Ottawa
Denmark.....1946	Ambassador.....	446 Daly Ave., Ottawa
Dominican Republic.....1954	Ambassador.....	200 Rideau Terrace, Ottawa
Ecuador.....1961	Ambassador.....	56 Sparks St., Ottawa
Finland.....1948	Ambassador.....	85 Range Road, Ottawa
France.....1928	Ambassador.....	42 Sussex Drive, Ottawa
Gabon.....1962	Ambassador.....	4900-16th St. N.W., Washington, D.C. 20011, U.S.A.
Germany.....1951	Ambassador.....	1 Waverley St., Ottawa
Ghana.....1961	High Commissioner.....	75 Albert St., Ottawa
Greece.....1942	Ambassador.....	Chateau Laurier Hotel, Ottawa
Guatemala.....1961	Ambassador.....	2220 R St. N.W., Washington, D.C. 20008, U.S.A.
Guinea.....1962	Ambassador.....	c/o Embassy of Guinea, 2112 Leroy Pl. N.W., Washington 8, D.C., U.S.A.
Haiti.....1954	Ambassador.....	150 Driveway, Ottawa
Hungary.....1964	Chargé d'Affaires <i>ad interim</i>	7 Delaware Ave., Ottawa
Iceland.....1948	Ambassador.....	c/o Embassy of Iceland, 1906-23rd St. N.W., Washington, D.C., U.S.A.
India.....1947	High Commissioner.....	200 MacLaren St., Ottawa
Indonesia.....1953	Ambassador.....	275 MacLaren St., Ottawa
Iran.....1956	Ambassador.....	85 Range Road, Ottawa
Iraq.....1961	Ambassador.....	1801 P St. N.W., Washington, D.C. 20008, U.S.A.
Ireland.....1939	Ambassador.....	170 Metcalfe St., Ottawa
Israel.....1953	Ambassador.....	45 Powell Ave., Ottawa
Italy.....1947	Ambassador.....	172 MacLaren St., Ottawa
Ivory Coast.....1964	Ambassador.....	c/o Embassy of Ivory Coast, 2424 Mas- sachusetts Ave. N.W., Washington, D.C. 20008, U.S.A.
Jamaica.....1962	High Commissioner.....	90 Sparks St., Ottawa
Japan.....1928	Ambassador.....	75 Albert St., Ottawa
Korea.....1963	Chargé d'Affaires <i>ad interim</i>	77 Metcalfe St., Ottawa
Lebanon.....1955	Ambassador.....	401 Albert St., Ottawa
Luxembourg.....1950	Ambassador.....	c/o Embassy of Luxembourg, 2210 Mas- sachusetts Ave. N.W., Washington, D.C. 20008, U.S.A.
Mali.....1963	Ambassador.....	c/o Embassy of Mali, 2130 R St. N.W., Washington, D.C. 20008, U.S.A.
Mexico.....1944	Ambassador.....	88 Metcalfe St., Ottawa
Morocco.....1962	Ambassador.....	c/o Embassy of Morocco, 1601-21st St. N.W., Washington, D.C. 20009, U.S.A.
Netherlands.....1939	Ambassador.....	12 Marlborough Ave., Ottawa
New Zealand.....1942	High Commissioner.....	77 Metcalfe St., Ottawa
Niger.....1963	Ambassador.....	c/o Embassy of Niger, 2013 Q St. N.W., Washington, D.C. 20009, U.S.A.
Norway.....1942	Ambassador.....	140 Wellington St., Ottawa
Pakistan.....1949	High Commissioner.....	505 Wilbrod St., Ottawa
Panama.....1962	Ambassador.....	c/o Embassy of Panama, 2862 McGill Ter. N.W., Washington, D.C. 20008, U.S.A.
Peru.....1944	Ambassador.....	539 Island Park Drive, Ottawa
Poland.....1942	Ambassador.....	10 Range Road, Ottawa
Portugal.....1952	Ambassador.....	285 Harmer Ave., Ottawa
Senegal.....1963	Ambassador.....	c/o Embassy of Senegal, 2112 Wyoming Ave. N.W., Washington, D.C. 20008, U.S.A.

2.—Representation of Other Countries in Canada—concluded

Country and Year Representation Established	Present Status of Representative	Address
South Africa.....1938	Ambassador.....	15 Sussex Drive, Ottawa
Spain.....1953	Ambassador.....	124 Springfield Road, Ottawa
Sweden.....1943	Ambassador.....	140 Wellington St., Ottawa
Switzerland.....1946	Ambassador.....	5 Marlborough Ave., Ottawa
Thailand.....1962	Ambassador.....	119 Range Road, Ottawa
Trinidad and Tobago.....1962	High Commissioner.....	75 Albert St., Ottawa
Tunisia.....1957	Ambassador.....	c/o Tunisian Permanent Mission to the United Nations, Tunisia House, 40 East 71st St., New York 22, N.Y., U.S.A.
Turkey.....1944	Ambassador.....	197 Wurtzburg St., Ottawa
Uganda.....1964	High Commissioner.....	c/o Permanent Mission of Uganda to the United Nations, 801 Second Ave., New York 17, N.Y., U.S.A.
Union of Soviet Socialist Republics.....1942	Ambassador.....	285 Charlotte St., Ottawa
United Arab Republic.....1954	Ambassador.....	454 Laurier Ave. East, Ottawa
United States of America.....1927	Ambassador.....	100 Wellington St., Ottawa
Uruguay.....1948	Chargé d'Affaires <i>ad interim</i>	124 Springfield Road, Ottawa
Venezuela.....1953	Ambassador.....	140 Wellington St., Ottawa
Yugoslavia.....1942	Ambassador.....	17 Blackburn Ave., Ottawa

Section 2.—International Activities, 1964-65

Subsection 1.—Canada and Commonwealth Relations

The Commonwealth today has been transformed basically from the compact and like-minded family of nations of predominantly European stock which constituted the Commonwealth association from the enactment of the Statute of Westminster to 1947. With its present membership of 21 sovereign states covering about one quarter of the earth's land surface, representing more than 700,000,000 people of many colours, creeds and languages, and including both economically developed and under-developed countries, as well as governments committed and uncommitted in the international power groupings, the Commonwealth more accurately reflects the world over which it spreads so widely. The interests of its members extend to all continents, and the variety of problems demanding their attention has greatly increased in scarcely more than a decade.

Commonwealth members are enumerated according to the year (if post-1931, noted in brackets) when membership was proclaimed: Britain; Canada; Australia; New Zealand; India (1947); Pakistan (1947); Ceylon (1948); Ghana (1957); Malaya (1957); Nigeria (1960); Cyprus (1961); Sierra Leone (1961); Tanganyika (1961); Jamaica (1962); Trinidad and Tobago (1962); Uganda (1962); Zanzibar (1963); Kenya (1963); Malawi (1964); Malta (1964); Zambia (1964); Gambia (1965). Early in 1964, Tanganyika joined Zanzibar to form the United Republic of Tanzania. When Singapore, Sarawak and Sabah joined the Federation in September 1963, Malaya became Malaysia.

Membership in the Commonwealth is a keystone of Canadian foreign policy. Canada has supported the extension and development of a strong Commonwealth, capable of exerting significant influence for international peace and progress. Commonwealth ties give Canada a special relationship with this group of nations which, despite the diversity of their backgrounds, share important ideals and traditions in common. Commonwealth ties are characterized in the main by a spirit of co-operation developed through consultation and exchanges of views. These are continuous not only in Commonwealth capitals but in other countries, as also at the United Nations and other international gatherings.

In addition to these continuing exchanges at many levels, special meetings are convened for the purpose of discussing and co-ordinating the growing body of Commonwealth plans and undertakings in special fields, and to review international developments in relation to the Commonwealth context. The most important conference of this kind in

1965 was the meeting of Heads of Government (Prime Ministers and Presidents) opening in London on June 17. This was the thirteenth in the series of these meetings held at intervals since the end of the Second World War. Malta, Zambia and Gambia, the latest three countries to accede to membership, were represented for the first time as independent nations.

Canada's external aid for developing countries continued to be directed, in the main, to Commonwealth countries through the Colombo Plan, the Canada-West Indies Aid Program, and the Special Commonwealth Africa Aid Program (SCAAP). Canada's total contribution under the Colombo Plan since the Plan's inception exceeds \$500,000,000. Canada aided Commonwealth countries in Africa through SCAAP to a total of \$21,000,000 for the period 1960-64. Approximately \$16,000,000 was made available for aid and technical assistance to Commonwealth Caribbean countries from 1958 to 1964. During 1964 Canada also undertook military assistance programs designed to improve the defence capability of certain Commonwealth countries. To this initiative may be added the adoption of a new special development-loan program for which \$50,000,000 is now set aside yearly. On the whole, therefore, as Canadian contributions to already approved assistance programs increased, new ventures have expanded even further the total of Canada's external aid, over 90 p.c. of which goes to Commonwealth countries.

Canada is an active participant in the Commonwealth Scholarship and Fellowship Plan (see p. 173) and is also playing a significant part in the training and provision of teachers for service in Commonwealth countries and assisting in plans for co-operation in technical education. During the academic year 1964-65, there were 261 Canadian teachers and 61 Canadians serving on university assignments under Canadian Government aid programs in the less-developed countries of Southeast Asia, Africa and the Caribbean area.

Subsection 2.—Canada and the United Nations

The problem of financing peace-keeping operations, and the even more important constitutional questions that it raised, dominated developments at the United Nations in 1964. The immediate problem arose out of the accumulated arrears which at the end of the year amounted to \$115,000,000, 98 p.c. of which represented unpaid assessments for the peace-keeping operations in the Middle East and the Congo. The Soviet Union and its allies were sufficiently in arrears to be subject to Article 19 of the Charter, which stipulates loss of vote in the General Assembly for defaulting states when arrears exceed the total of assessed contributions for the two previous years. The Soviet bloc and France took the position that these assessments were not a binding obligation to which Article 19 would be relevant, while Canada, the United States, Britain and the majority of members maintained that they were properly authorized assessments and should be paid. Although neither side was prepared to give way on the important points of principle at stake, both wished to avoid a confrontation over the application of Article 19 and, consequently, not only was the opening of the nineteenth session of the General Assembly postponed until Dec. 1 in the hope that the problem could be solved by negotiation but, when it did convene, it was decided not to deal with issues requiring a vote. After it became clear that the financial issue required extensive further study and that, in any case, little could be accomplished under the "no vote" procedure, the General Assembly adjourned on Feb. 18, 1965, but before doing so set up a 33-member Special Committee on Peace-keeping Operations "to review the whole question of peace-keeping operations in all their aspects" and to report back to the General Assembly by June 15. Canada is one of its members.

In addition to the financial question, there were a number of other developments in the peace-keeping field in 1964. The United Nations Operations in the Congo (ONUC) was withdrawn at the end of June after four years of service during which it helped to maintain law and order and to preserve the territorial integrity of the Congo, and the United Nations Yemen Observation Mission (UNYOM) also concluded its activities in

supervising the cease-fire agreements between Saudi Arabia and the United Arab Republic. Of particular significance was the unanimous decision of the Security Council in March 1964 to establish the United Nations Force in Cyprus (UNFICYP) to contain the communal strife between the Greek and Turkish communities on that island. It was authorized on the basis of voluntary financing instead of assessment of the whole membership as was the case for the operations in the Middle East and the Congo. Canada contributed troops to all these peace-keeping operations as well as to the United Nations Emergency Force (UNEF), the United Nations Truce Supervision Organization (UNTSO) and the United Nations Military Observer Group in India and Pakistan (UNMOGIP).

Canada also convened a meeting in Ottawa in November to consider the technical aspects of the United Nations peace-keeping operations. Twenty-three countries which had contributed to past peace-keeping operations or which had formed or were intending to form standby units for this purpose were represented. It was generally agreed that as a result of the meeting the participants had a better understanding of each other's problems and that their governments would be able to put this knowledge to use in preparing for future requests from the United Nations for military assistance in emergencies.

In 1964 the United Nations continued to carry out its extensive programs in the field of economic development. The most significant event in this respect was the convening in Geneva from March to June of the United Nations Conference on Trade and Development (UNCTAD), the largest economic conference in the history of the United Nations. It adopted some 60 recommendations on a wide variety of subjects and in December 1964 it was established as an organ of the General Assembly. The United Nations Expanded Programme for Technical Assistance (EPTA) supplied 2,500 experts and 3,000 fellowships to developing countries, while the United Nations Special Fund had at its disposal approximately \$90,000,000 to spend on pre-investment assistance to developing countries.

The advance of colonial territories toward independence continued and in 1964 Malta, Malawi and Zambia were admitted to the United Nations. The Special Committee of Twenty-four met frequently to consider a number of colonial issues including Rhodesia, South-West Africa, Aden, British Guiana and the Portuguese territories in Africa. The question of the *apartheid* policies of the South African Government remained in the forefront and was discussed in a series of meetings of the United Nations committees concerned and at the conferences of some of the Specialized Agencies.

In the social sector, the Specialized Agencies continued their efforts to advance education, relieve hunger and improve public health, while the High Commissioner for Refugees and UNICEF carried on with their invaluable work on behalf of refugees and of children. During the year, the Human Rights Commission devoted much of its time to the drafting of a convention on racial discrimination and a companion declaration on religious intolerance.

Since 1965 is International Co-operation Year, the Canadian Government and non-governmental organizations have sought to make its objectives better known and to give them added dimension by engaging in further projects in aid of the developing countries.

Canadian Financial Contributions to the United Nations.—In 1964, Canada's contributions to the United Nations system were as follows:—

<i>Agency</i>	<i>Percentage Assessment</i>	<i>Contribution (Canadian \$)</i>
United Nations—		
Regular budget.....	3.12	2,730,031
Special Accounts—		
Operations in the Middle East (UNEF)—		
Assessed.....	3.12	596,482
Voluntary.....	..	92,880
Operations in the Congo (ONUC)—		
Assessed.....	3.12	504,361
Voluntary.....	..	97,200
Force in Cyprus (UNFICYP).....	..	4,971,500
Congo Civilian Fund.....	..	500,000

For footnotes, see end of statement, p. 166.

<i>Agency</i>	<i>Percentage Assessment</i>	<i>Contribution (Canadian \$)</i>
United Nations—concluded		
Special Accounts—concluded		
Relief and Works Agency (UNWRA)—		
Cash.....	..	500,000
Wheat flour.....	..	500,000
World Food Program—		
Cash.....	..	602,350
Commodities.....	..	994,400
High Commissioner for Refugees (UNHCR).....	..	290,000
Expanded Programme of Technical Assistance (EPTA).....	..	2,325,000
Special Fund.....	..	5,000,000
Children's Fund (UNICEF).....	..	800,000
Specialized Agencies and International Atomic Energy Agency—		
International Labour Organization (ILO).....	3.39	595,278
Food and Agriculture Organization (FAO)—		
Regular budget.....	4.18	796,688
Voluntary programs.....	..	5,000
World Health Organization (WHO).....	2.85	1,060,338
United Nations Educational, Scientific and Cultural Organization (UNESCO).....	2.98	611,673
International Civil Aviation Organization (ICAO).....	4.55	219,309
International Telecommunication Union (ITU).....	3.28	127,800
World Meteorological Organization (WMO).....	2.63	32,262
Inter-Governmental Maritime Consultative Organization (IMCO).....	1.64	10,082
Universal Postal Union (UPU).....	2.69	29,480
International Monetary Fund (IMF).....	3	3
International Bank for Reconstruction and Development (IBRD).....		
International Finance Corporation (IFC).....		
International Development Association (IDA).....	..	7,872,620
International Atomic Energy Agency—		
Regular budget.....	2.89	201,914
Operational budget.....	..	62,208
Related Organizations—		
Inter-Governmental Committee for European Migration (ICEM).....	4	60,000
International Committee of the Red Cross.....	..	15,000
United Nations Association in Canada.....	..	12,000

¹ Jan. 1, 1964 to June 30, 1964.

² Estimated. Canada pays all costs of maintaining its contingent in Cyprus but recovers from the UN the out-of-pocket expenses of Canadian personnel at Nicosia Zone and UNFICYP headquarters. The figure cited does not include salaries and similar costs which Canada would have had to pay if the personnel had remained in Canada.

³ Canada has paid in full its subscriptions to these organizations and, therefore, was not required to make payments in 1964. It is expected, however, that additional subscriptions will be made to the IBRD and IMF in 1965 as a result of the general review of quotas in the IMF authorized by its Board of Governors at the Annual Meeting in Tokyo in 1964.

⁴ Canada withdrew from ICEM in 1962 but has continued to make an annual grant for the transportation of refugees.

Specialized Agencies.—Canada is a member of each of the 13 Specialized Agencies of the United Nations. As well, Canada holds membership in the International Atomic Energy Agency (IAEA), an autonomous international organization under the aegis of the United Nations. These Agencies are bodies with wide international responsibilities established by intergovernmental agreement, which act in relationship with the United Nations to assist in carrying out the terms of the Charter. Co-ordination of their activities is promoted by the Administrative Committee on Co-ordination established by the Economic and Social Council. The Committee is composed of the Secretary-General of the United Nations and the executive heads of the Specialized Agencies and the Director-General of IAEA. It considers not only administrative questions common to them all, but projects on problems of special urgency to be undertaken jointly by several Agencies.

International Labour Organization.—The International Labour Organization (ILO) was originally established with the League of Nations in 1919 and became a Specialized Agency of the United Nations in 1946. It brings together representatives of governments, employers and workers from 110 member states in an attempt to promote social justice by improving working and living conditions in all parts of the world. ILO is responsible for a number of technical programs, financed by the United Nations Special Fund and the Expanded Programme of Technical Assistance, as well as training projects under its regular budget. To further its work, the ILO holds numerous meetings during the year, including the regular International Labour Conference each June in Geneva. At the Conference in June 1964, the principal debate focused on methods of modernizing and streamlining the programs and structures of the Organization.

Food and Agriculture Organization.—The Food and Agriculture Organization (FAO) came into being in 1945, the first Conference being held in that year in Quebec City. The objectives of the Organization are to raise the levels of nutrition and living standards of its members and to improve the techniques of the production and distribution of food and agricultural, fishery and forestry products. To this end, the FAO Secretariat collects, analyses and distributes technical and economic information and encourages appropriate national and international action. A Council meets twice a year to give direction and policy guidance to the Secretariat; the FAO Conference, which is the governing body of the Organization, meets every other year. Headquarters are in Rome, Italy.

Canada has participated actively in FAO activities and is a member of the Council, the Committee on Commodity Problems (CCP), the Consultative Sub-Committee on Surplus Disposal, the FAO Group on Grains, the North American Forestry Commission and other FAO bodies. A number of Canadians are on the staff at Rome headquarters and many Canadians have undertaken assignments under FAO technical assistance programs. Canadian membership in the Organization is provided for by an Act of the Canadian Parliament passed in 1945. A committee of officials from Canadian Government departments (the Canadian Interdepartmental FAO Committee) has been established to maintain liaison between the FAO Secretariat and the Canadian Government.

The FAO and the United Nations are jointly responsible for the World Food Program, a three-year experimental project that went into operation at the beginning of 1963. The Program provides food aid on a multilateral basis for emergency relief and to promote economic and social development, including feeding of children. With a contribution of approximately \$7,000,000 to the three-year project, Canada is the third largest financial supporter of the World Food Program.

World Health Organization.—The World Health Organization (WHO) came into being in 1948 and is one of the largest of the Specialized Agencies of the United Nations, having a membership of 120. Functioning through the World Health Assembly (an organization composed of an Executive Board, a Secretariat and six Regional Committees), WHO acts as a directing and co-ordinating authority on international health matters. In addition, it provides advisory and technical services to help countries develop and improve their health services. The 17th World Health Assembly was held in Geneva in March 1964. (See also the item "International Health" in Subsect. 7, Sect. 1, Part I of Chapter VI on Public Health, Welfare and Social Security.)

United Nations Educational, Scientific and Cultural Organization.—The United Nations Educational, Scientific and Cultural Organization (UNESCO) was established in 1946 "to contribute to peace and security by promoting collaboration among the nations through education, science and culture in order to further universal respect for justice, for the rule of law, for human rights and fundamental freedoms".

Total membership in UNESCO at the end of 1964 was 117 states. The Organization is made up of three principal organs—the General Conference, which is the policy-making body, the Executive Board and the Secretariat. Representatives from member states make up the General Conference which meets every two years to consider applications for membership, elect the Executive Board, plan the program and approve the budget for the ensuing two-year period. The latest General Conference was held at the headquarters of the Organization in Paris in October and November 1964. It approved a budget of \$48,900,000, giving priority to the educational needs of the developing countries and to science activities, particularly the application of science to development. The Canadian assessment rate is 2.98 p.c. The next General Conference will take place in Paris in October 1966.

International Civil Aviation Organization.—The International Civil Aviation Organization (ICAO), with headquarters in Montreal, is the only Specialized Agency of the United Nations with headquarters in Canada. Canada has been a member of the 27-nation

Council, the governing body of ICAO, since its inception in 1947. The Fifteenth Session of the ICAO Assembly, consisting of all member states, will be held in Montreal from June 22 to July 19, 1965.

International Telecommunication Union.—Canada is a member of the International Telecommunication Union (ITU), a Specialized Agency of the United Nations, which traces its origin to the International Telegraph Convention of 1865 and the International Radio Telegraph Convention of 1906. The Administrative Council of the ITU met in Geneva in the spring of 1964; Canada was represented at that meeting and at meetings of subsidiary bodies which took place during the year.

World Meteorological Organization.—Canada is a member of the World Meteorological Organization (WMO), a Specialized Agency of the United Nations since 1951 but developed from the International Meteorological Organization founded in 1878. During 1964, Canada was represented at the regular meetings of a number of the subsidiary bodies of WMO. Presidents of two of the eight technical commissions of the Organization elected in 1964 were Canadian.

Inter-Governmental Maritime Consultative Organization.—The Inter-Governmental Maritime Consultative Organization (IMCO) was established in 1959 to promote international co-operation on technical shipping problems and the adoption of the highest standards of safety and navigation. In September 1964, an extraordinary session of the IMCO Assembly was convened in London. Membership of the Council was expanded during 1964 from 16 to 18 in order to provide broader representation on a geographical basis.

Universal Postal Union.—One of the oldest and largest of the Specialized Agencies, the Universal Postal Union (UPU) was founded in Berne in 1874 with the principal aim of improving postal services throughout the world and promoting international collaboration. The Universal Postal Congress is the supreme authority of the UPU and normally meets every five years to review the Universal Postal Convention and its subsidiary instruments. In the interim, activities of the Union are carried on by an Executive Council, a Consultative Committee on Postal Studies and an International Bureau. The 15th Congress, which should have convened in 1962, was held in Vienna from May 29 to July 10, 1964.

International Monetary Fund.—The International Monetary Fund, set up by the Bretton Woods Conference in 1944, came into being in 1945. It provides machinery for international consultation and collaboration on monetary, payment and exchange problems. Included in these purposes are the promotion of exchange stability, the elimination of exchange restrictions, the establishment of a multilateral system of current payments and the expansion and balanced growth of international trade. Also, member countries under certain conditions may draw on the regular resources of the Fund, which now amount to some \$15,993,000,000 (of which the equivalent of approximately \$10,000,000,000 is in gold and convertible currencies) or on the supplementary resources of \$6,000,000,000 made available in 1962 under the General Arrangements to Borrow. The Fund had 102 members as of Apr. 30, 1965. Canada has been represented on the Fund's Executive Board since its inception.

International Bank for Reconstruction and Development.—The IBRD or World Bank was founded at the same time as the International Monetary Fund at the Bretton Woods Conference in 1944 to assist the development of productive resources in member countries by extending loans where private capital is not available on reasonable terms and by providing technical assistance. The loans are made from the paid-up subscriptions of member states, from the surplus accumulated by the Bank and from loans raised in the markets of member states. By Dec. 31, 1964, the subscribed capital was \$21,228,800,000 (U.S.). The Bank's first loans were for European postwar reconstruction but in 1948 the Bank turned to lending for development and an increasing proportion of its funds has been directed to the less-developed areas of the world. As of Dec. 31, 1964 the Bank had made 402 loans totalling \$8,352,200,000 (U.S.) in 74 countries or territories. About \$6,287,100,000

(U.S.) of this had been disbursed and \$2,679,500,000 had been either repaid to the Bank or sold to other investors. Up to Dec. 31, 1964, the Bank had used or been able to allocate for lending the equivalent of approximately \$1,718,000,000 from paid-in capital, including the full \$75,000,000 of the paid-in portion of Canada's subscription.

International Finance Corporation.—The function of the International Finance Corporation, which is an affiliate of the IBRD, is to promote the growth of productive private enterprise by assisting private capital, by acting as a clearing house in bringing together investment opportunities and private capital and by helping to enlist managerial skill and experience when not otherwise available to a project. Of a total capital subscription of \$99,000,000 (U.S.), Canada has provided \$3,600,000.

International Development Association.—The IDA, also an affiliate of the IBRD, was established in September 1960 to meet the situation of a growing number of less-developed countries whose need for and ability to make use of outside capital is greater than their ability to service conventional loans. Consequently, the terms of IDA development credits are designed to impose far less burden on the balance of payments of borrowing countries than conventional loans. Credits extended to date have each been for a term of 50 years, bearing no interest. At the end of 1964, paid-in and prospective resources of IDA amounted to \$1,595,000,000 (U.S.). Prospective contributions to be paid in over the three years 1965-68 (subject to legislative authorization) will amount to \$750,000,000 (U.S.) of which Canada's share will be \$41,700,000 (U.S.). IDA began operations in November 1960 and extended its first development credit in May 1961. By Dec. 31, 1964, it had extended a total of 70 development credits totalling \$1,002,000,000 to 27 countries in Africa, Asia, the Middle East and the Western Hemisphere.

International Atomic Energy Agency.—Formed in 1957, the International Atomic Energy Agency (IAEA) is an autonomous international organization under the aegis of the United Nations. The Agency was given a mandate to seek to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world in a variety of ways. Because Canada has been designated as one of the five members most advanced in nuclear technology, including the production of source materials, a Canadian representative has served on the IAEA Board of Governors since the inception of the Agency. In 1964, Canada's Permanent Representative was elected Chairman of the Board.

During September, the IAEA sponsored the Third United Nations Conference on the Peaceful Uses of Atomic Energy. Nearly 3,700 delegates and observers from 77 countries took part. Canada sent a delegation of approximately 60 persons from industry and government. The main theme of the Conference was the production of nuclear power for peaceful purposes. This Conference was followed by the IAEA Eighth General Conference held at the Agency headquarters in Vienna. Atomic Energy of Canada Limited donated a \$30,000 Gammacell for research purposes at the Agency Laboratories in Vienna, which was installed in May 1964. Canada also made a voluntary contribution of \$57,600 to the General Fund to be applied to the Agency's technical assistance program, which placed Canada fourth in this respect after the United States, Britain and West Germany.

International Law Commission.—By Article 13(1) of the Charter of the United Nations, one of the purposes of the UN General Assembly is to encourage the progressive development of international law and its codification. In order to implement and to assist in this function, the International Law Commission was created by a General Assembly resolution dated Nov. 21, 1947. It is composed of 25 members who are elected in their individual capacity. They serve for terms of five years and, in general, represent the main forms of civilization and principal legal systems of the world. On Nov. 28, 1961, Canada's Under-Secretary of State for External Affairs was elected to membership of this Commission. The 25 countries whose nationals form, at present, the International Law Commission are: Afghanistan, Algeria, Argentina, Austria, Brazil, Britain, Canada,

China, Dahomey, Ecuador, Finland, France, India, Iraq, Israel, Italy, Japan, Nigeria, Poland, Spain, the Union of Soviet Socialist Republics, the United Arab Republic, the United States of America, Uruguay and Yugoslavia.

Subsection 3.—Canada and the North Atlantic Treaty Organization*

There were two Ministerial Meetings held during 1964, and meetings at NATO headquarters in Paris of the Permanent Representatives of the North Atlantic Council were held continuously throughout the year.

The annual spring meeting was held in The Hague from May 12-14, attended by the Foreign Ministers of the NATO Alliance. The Canadian Delegation was led by the Secretary of State for External Affairs. Ministers discussed the annual political appraisal of the state of the Alliance and emphasized the role of the Atlantic Alliance as the indispensable guardian of security and peace, and thus as the prerequisite for social and economic progress. The NATO Council reaffirmed that a just and peaceful solution to the problem of Germany can be reached only on the basis of the right of self-determination, and agreed that every suitable opportunity should be taken to bring nearer to realization the wish of the German people for reunification in freedom, and thereby ensure an enduring peace in Central Europe.

NATO Ministers expressed their concern at the situation in the southeastern region of NATO arising from the continuing disorders in Cyprus. They reaffirmed the full support of their governments for the action decided upon by the United Nations Organization with a view to restoring law and order, and for the efforts of the mediator appointed by the United Nations to seek an agreed solution of the problem.

Ministers expressed their deep regret at the impending departure of Mr. Dirk U. Stikker, who announced his intention of retiring from the Secretary-Generalship of NATO. The Council invited Signor Manlio Brosio, former Deputy Prime Minister and Defence Minister in the Italian Government and the present Italian Ambassador in Paris, to become Secretary-General in succession to Mr. Stikker as from Aug. 1, 1964. Signor Brosio informed the NATO Council of his acceptance of this invitation.

The annual Ministerial Meeting held in Paris Dec. 15-17 was attended by a Canadian Delegation led by the Secretary of State for External Affairs and the Minister of National Defence. Ministers surveyed the whole field of East-West relations and noted that recent developments in China and the Soviet Union had increased the uncertainties with which the world is faced. They reiterated their conviction that it remained essential for the Alliance to maintain and strengthen its unity. Ministers also reviewed the situation in various areas in Asia, Africa and Latin America. They reaffirmed their interest in the stability of those areas in the economic and social welfare of the peoples concerned.

In their discussions on the state and future progress of the Alliance, Ministers emphasized the importance of strengthening and deepening their political consultation. Recognizing the challenges that may face NATO in the years ahead, they directed the Council in Permanent Session to study the state of the Alliance and the purposes and objectives commonly accepted, and to keep Ministers informed.

Ministers expressed their conviction that the unity and military preparedness of the Alliance had safeguarded peace and preserved the freedom of the West in the past. So long as general and complete disarmament under effective international control has not been achieved, any weakening of the Allied defensive posture would expose the Alliance to increased pressures. Ministers therefore stressed the importance of maintaining the cohesion of member states in the strategic as well as the political field. Ministers also examined the problems concerning the Alliance in the field of conventional and nuclear weapons. A thorough exchange of views on these problems took place and will be continued. Ministers reaffirmed the significance they attached to the studies of the interrelated questions of

* The terms of the Treaty and the organization of the Council and subordinate committees are dealt with in the 1954 Year Book at pp. 113-115. A short review of the events leading up to the establishment of NATO and its subsequent membership is given in the 1960 Year Book at p. 167.

strategy, force requirements and resources, initiated at the Ottawa meeting in May 1963, and instructed the Council in Permanent Session to continue them with the assistance of the NATO Military Authorities.

With regard to Greek-Turkish relations, Ministers heard a report by the Secretary-General on the "watching brief" conferred on his predecessor at The Hague in May 1964 and agreed that this watching brief should continue. They reaffirmed their determination to lose no opportunity of contributing to a reduction in tension and a peaceful, agreed and equitable solution of the problem of Cyprus, confirming also their support for the efforts of the United Nations and the mediator.

Canadian Contributions to NATO.—Support for NATO during 1964 continued to be one of the foundations of Canadian foreign policy. As its contribution to the military strength of the Alliance, Canada maintains an army brigade and an air division in Europe and supporting forces in Canada, including one battalion assigned to the Mobile Reserve of Allied Command Europe. It has assigned a substantial naval force to the Supreme Allied Commander Atlantic (SACLANT) for the defence of the Canada-United States region in case of emergency and participates with the United States in the defence of the North American Continent through the North American Air Defence Command (NORAD).

Since 1950, Canada has contributed approximately \$1,800,000,000 in mutual aid to European members of NATO. The aid program, consisting of contributions to NATO infrastructure and military costs, transfers of equipment to member countries and aircrew training in Canada of NATO forces, continued throughout 1964. This program has decreased in magnitude with the changing conditions and the increasing ability of the European members to meet their individual defence requirements.

Subsection 4.—Canadian External Aid Programs

The Colombo Plan.—The Colombo Plan for Co-operative Economic Development in South and Southeast Asia was conceived at the Commonwealth Meeting of Foreign Ministers held at Colombo, Ceylon, in January 1950. Although the Plan was initiated by Commonwealth governments, it is not exclusively a Commonwealth Program. It is designed to assist in the economic development and the raising of living standards of all countries and territories in the general area of South and Southeast Asia. Its membership now includes Afghanistan, Australia, Bhutan, Britain, Brunei, Burma, Cambodia, Canada, Ceylon, India, Indonesia, Japan, Korea, Laos, Malaysia, Maldives Islands, Nepal, New Zealand, Pakistan, the Philippines, Thailand, Viet-Nam and the United States; the latter is also engaged in a substantial program of economic aid in the same region. Afghanistan and the Maldives Islands are the latest members and were admitted to membership in 1963.

The Colombo Plan is supervised by a Consultative Committee composed of Ministers of the member countries, who meet once a year to review projects and exchange views on policy matters. As a consultative body, it makes no collective policy decisions binding member countries; a Council for Technical Co-operation, on which Canada is represented, meets regularly in Ceylon to develop the technical co-operation program of the Plan. Consultative Committee meetings were held in Karachi in 1952, New Delhi in 1953, Ottawa in 1954, Singapore in 1955, Wellington in 1956, Saigon in 1957, Seattle in 1958, Jogjakarta in 1959, Tokyo in 1960, Kuala Lumpur in 1961, Melbourne in 1962, Bangkok in 1963 and London in 1964. At the Jogjakarta meeting it was agreed to extend the Colombo Plan for another five years from June 1961, and this was similarly approved for a further five-year extension at the London meeting in 1964. Reports of the Committee on progress and future plans are published after each annual meeting; each report also contains sections describing the activities of member countries.

From the inception of the Plan in 1950 through April 1965, Canada made available a total of \$528,678,000 in grant aid for capital and technical assistance projects in South and Southeast Asia; Parliament appropriated \$64,007,000 for Canadian participation in 1964-65, including \$19,000,000 in Special Development Loans and \$19,500,000 for food aid. Al-

though nine countries are now receiving capital assistance from Canada, the largest contributions have so far been made to Ceylon, India, Malaysia and Pakistan. The Canadian contribution consists primarily of direct assistance to various development projects, including equipment for multi-purpose irrigation and hydro-electric projects, power-generating plants, construction and fisheries projects and resources surveys, hospital equipment and cobalt therapy units, as well as educational and laboratory equipment and books. It has also included gifts of raw materials, commodities and foodstuffs, such as industrial metals, asbestos, fertilizer, wheat, wheat flour and butter, from the internal sale of which recipient governments have been able to raise funds to meet local costs of economic development projects.

Under the Technical Assistance Program, up to March 1965, 2,931 persons from all countries in the area had come to Canada for training in a variety of fields, the major ones being public administration and finance, agriculture, co-operatives, engineering, mining and geology, statistics, health education and social welfare. More than 347 Canadian experts had been sent abroad for service in Colombo Plan countries in such fields as fisheries, agriculture, engineering, mining and prospecting, co-operatives, public administration, education and vocational training, and public health. Other Canadians were employed on aerial resources survey teams and on the installation and operation of capital equipment.

Commonwealth Caribbean Program.—In 1958, when the Federation of the West Indies was being formed, Canada undertook a five-year \$10,000,000-program of economic and technical assistance. It was later decided to continue providing assistance to the area after the dissolution of the Federation with the provision of \$2,100,000 in 1963-64 for Jamaica, Trinidad and Tobago, Barbados, Leeward and Windward Islands, British Guiana and British Honduras. As part of its expanded aid program for 1964-65, the Canadian Government made available in loans and grants to the area a total of \$9,000,000.

The major project undertaken by Canada at the request of the Federation was the provision of two passenger-cargo ships for inter-island transportation, at a cost of nearly \$6,000,000. The vessels were commissioned in the summer of 1961 and handed over to the West Indies Government. Other projects that have been completed include a deep water wharf in St. Vincent, a residence hall for the University of the West Indies in Trinidad, port-handling equipment for five harbours, schools in three islands and warehouses at two sites. Additional projects now under way include the provision of freshwater systems in two islands, an aerial survey of Trinidad and a series of development studies for that island, the provision of lumber for a housing scheme, factory buildings and rural electrification equipment for Trinidad, the construction of a bridge and sewerage system in Jamaica, the supply of a fishing vessel for Jamaica and the shipment of highway maintenance equipment and diesel locomotives to British Guiana.

A substantial amount of technical assistance has also been given. As of Mar. 31, 1965, training programs had been arranged in Canada for 346 students from the Commonwealth Caribbean. Their fields of study included agriculture, engineering, fisheries, forestry, medicine and public administration. In addition, 170 Canadians have been sent to the Commonwealth Caribbean; they included teachers, soil surveyors and advisers in statistics, legal drafting, housing, films, radio broadcasting, postal services, Indian affairs, technical education and harbour management.

Special Commonwealth Africa Aid Program.—In the autumn of 1960 the Canadian Government undertook, subject to parliamentary approval, to contribute \$10,500,000 to a Special Commonwealth Africa Aid Program over a three-year period beginning Apr. 1, 1961. The program, known as SCAAP, arose from discussions at the meeting of Commonwealth Prime Ministers in 1960. Roughly speaking, SCAAP is a counterpart in Africa of the Colombo Plan in Asia, although it is entirely a Commonwealth scheme. The main donor countries are Britain, Canada, Australia and New Zealand; some of the newer Commonwealth members, particularly India and Pakistan, have been able to provide

limited amounts of technical assistance in the fields in which they have experience and specialized knowledge. All of the Commonwealth areas of Africa, both independent countries and dependent territories, qualify for assistance under this program.

Within the context of Canada's expanded aid programs, increased levels of grant assistance were available in the year ended Mar. 31, 1965 for Commonwealth countries and territories of Africa. In addition, discussions were begun with a number of African countries on projects that would be suitable for special development loan financing.

During 1964-65, grant aid expenditures totalled almost \$5,000,000, a figure nearly 50 p.c. above the level of \$3,300,000 in the previous fiscal year. The increased expenditures related principally to the provision of teachers and advisers and of training facilities in Canada; expenditures for these purposes rose from \$2,256,000 in 1963-64 to \$3,691,000 in 1964-65. Expenditures on capital projects and the supply of equipment increased from \$1,106,000 to \$1,297,000 during the same period; the number of teachers and other technical advisers on assignment in Africa financed by Canadian aid funds rose from 189 to 278; and the number of African students receiving training in Canada under SCAAP and Commonwealth Scholarship Plan auspices was 400 compared with 278 in the previous year.

Construction progressed on a Trades Training Centre at Accra; this Centre, staffed by Canadians and Ghanaians, is expected to open its doors in January 1966. During 1964-65, projects were initiated or continued in six countries—Ghana, Kenya, Malawi, Nigeria, Tanzania and Uganda. Major projects were principally in the fields of resource development, mapping and education. The second phase of a mapping and aerial survey in Nigeria was begun, which will involve a total Canadian expenditure of almost \$3,500,000, representing the costs of Canadian photography carried out in Nigeria (Canadian aircraft and crew) and the production in Canada of the required survey maps. Canada is also participating in a similar mapping survey of South-East Tanzania and has committed \$1,000,000 to cover Canadian costs. Agreement was also reached on a feasibility survey for the establishment of a pulpwood industry in Malawi to exploit the timber resources of the Vipya Plateau. In Nigeria, as part of a comprehensive rural water development program, Canada undertook an extensive water resources survey.

Educational Assistance to French-Speaking States in Africa.—In April 1961, the Canadian Government announced an offer of assistance in the educational field to the French-speaking states in Africa, and subsequently appropriated \$300,000 for this purpose for each of the years ended Mar. 31, 1962, 1963 and 1964. It was decided at the commencement of this program that emphasis should be placed on the provision of Canadian teachers for Africa. For the year ended Mar. 31, 1965, aid was substantially increased and an allocation of \$4,000,000 was provided to allow for development of a capital assistance program as well as expansion of technical assistance. During the year, 67 teachers served in French-speaking Africa and there were 54 students receiving training in Canada. Preliminary surveys for bridge construction and hydro-electric development were carried out and an agriculture education survey of six countries was in progress at the end of the year. Arrangements were made to assist the Republic of Guinea in its roads improvement program by the provision of heavy equipment. A series of educational films was offered to Cameroon, Central African Republic, Chad, Congo, Dahomey, Morocco, Niger, Togo and Upper Volta. A contribution of \$500,000 was made to the UN Congo Civilian Fund.

The Commonwealth Scholarship and Fellowship Plan.—The proposal to establish a Commonwealth Scholarship and Fellowship Plan was made at the Trade and Economic Conference held at Montreal in September 1958. The Conference envisaged a scheme of 1,000 university scholarships, of which Britain undertook to provide one half and Canada one quarter. The details of the proposed scheme were worked out at the Commonwealth Education Conference at Oxford in 1959. This Plan was designed to enrich the intellectual life of each country of the Commonwealth by enabling an increased number of its abler students to share in the wide range of educational resources available through the Commonwealth and thus promote the equality of educational opportunity at

the highest level. During the academic year 1964-65 there were 237 Commonwealth scholars in Canada and, since the Plan first became operational during the 1960-61 academic year, a total of 479 scholars have come to Canada for advanced study.

Arrangements were made in 1965 to introduce Research and Visiting Fellowships as part of the Canadian contribution to this Plan. It is expected that each year three Research Fellowships will be awarded for a full academic year and five Visiting Fellowships for shorter periods. These Fellowships are intended for senior educationists from other Commonwealth countries to enable them to visit Canadian universities and other educational institutions to carry out investigations, study or research in their particular fields.

Co-operation with the United Nations and its Specialized Agencies, and with Other International Aid Programs.—In addition to the annual contributions made to the United Nations Expanded Programme of Technical Assistance, Canada arranges training programs in Canada for individuals studying under the auspices of the different Specialized Agencies. This service is also extended to the technical assistance program of the International Co-operation Administration of the United States as well as to other international aid organizations. Up to Mar. 31, 1965, more than 2,000 individuals had come to Canada through the various agencies from more than 100 countries in all parts of the world. Assistance is also given by recruiting Canadians for service with the Specialized Agencies on specific technical assistance assignments in under-developed countries.

External Aid Office.—As of Nov. 9, 1960, the operation and administration of Canada's external assistance programs became the responsibility of the External Aid Office, established by Order in Council of that date, and placed in charge of a Director General.

As mentioned under the separate programs above, additional funds were made available for grant assistance in 1964-65. Canada also introduced a development loan program for which \$50,000,000 was authorized by Parliament on a non-lapsing basis. The terms of the loans are comparable with those of the International Development Association—up to 50 years maturity, non-interest-bearing, ten-year grace period, and 0.75 of 1 p.c. service charge.

Also during 1964-65, Parliament approved for the first time the establishment of a separate food aid program under which the External Aid Office is able to purchase food products to meet part of the Canadian contributions to the FAO World Food Program and to meet the needs of countries requesting this form of Canadian assistance. During the year, some \$22,000,000 worth of wheat and flour was purchased under this appropriation for shipment to less-developed countries, the amount including a supplementary appropriation of \$7,000,000 to meet an emergency situation in India.

Subsection 5.—Organization for Economic Co-operation and Development

The Organization for Economic Co-operation and Development (OECD) was established in October 1961 as successor to the OEEC, with Canada and the United States joining the countries of Western Europe as full members of the new body. Japan, previously a member of the Development Assistance Committee, became, in May 1964, a full member of the OECD and the first member from outside Western Europe or North America.

The prime purpose of the OECD is to promote among member governments co-operation in the fields of economic policy, trade and assistance to developing countries, though it also provides a valuable forum for discussion of common problems in agriculture, industry, finance, technology and manpower policy. In 1963, Ministers approved an annual growth target for member countries for the next seven years of 4 p.c. in real gross national product. Because of its development from the former OEEC, the Organization was at first concerned largely with questions of primarily European interest but, as its membership expanded, it has become increasingly a recognized forum for broader consultation among advanced industrial countries, particularly on questions of economic and financial policy and on the problems of the developing countries. In this latter regard,

the OECD now constitutes the main forum for consultations among developed countries concerning the recommendations of the UN Conference on Trade and Development held in Geneva in the spring of 1964.

The OECD brings together government officials as well as representatives of private business, labour unions, universities and other non-governmental bodies in both deliberative and consultative capacities, and provides for international liaison among such groups. Within Canada, liaison has been established with the business community through the Canadian Business and Industry Advisory Committee, which was established in 1962 and comprises representatives of the Canadian Chamber of Commerce, the Canadian Council of the International Chamber of Commerce and the Canadian Manufacturers' Association. Parallel arrangements exist for consultation with Canadian labour organizations.

CHAPTER III.—POPULATION

CONSPECTUS

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*The interpretation of the symbols used in the tables throughout the Year Book
will be found on p. viii of this volume.*

Section 1.—Census of Population

This Section presents only a limited summary of the voluminous data on population recorded by the 1961 Census of Canada, with certain comparable data from earlier censuses. More detailed information is published in a series of reports which are obtainable from the Queen's Printer or the Dominion Bureau of Statistics. A list of these publications is available on request from the Information and Public Relations Division of the Dominion Bureau of Statistics.

Subsection 1.—Growth and Movement of Population*

Population Growth.—Canada's population stood at 18,238,000 in 1961 as against 10,377,000 in 1931 and 5,371,000 in 1901. In the first decade of the century, the gain of 34 p.c. was greater than in any censal period up to 1961. Growth was associated with the opening up of the West for settlement and massive immigration from overseas. During the 1901-11 period, about 1,760,000 immigrants entered the country and natural increase amounted to an estimated 1,000,000. As the total increase in population was 1,835,328, it is evident that there was substantial emigration during the period. In the 1911-21 period, population growth dropped to 22 p.c. Military losses in the First World War and losses during the influenza epidemic, which together amounted to about 120,000, were a factor in this decline. Although the flow of immigrants was reduced during the war years, it had been very heavy immediately preceding the War, so that the total number for the period (1,612,000) was very close to that for the previous censal period. However, emigration was also extremely high and the increase in population amounted to 1,581,306, representing 2 p.c. per annum compared with 3 p.c. in the 1901-11 period.

In the decade 1921-31, the rate of increase dropped to 18 p.c. Immigration fell to 1,200,000 and emigration was estimated at 1,000,000. Thus the increase in population,

* An outline of the growth of population in Canada since the beginning of the seventeenth century may be found in Vol. I of the 1931 Census. Other accounts of population growth prior to the present century are included in Vol. I of the 1941 Census and Vol. X of the 1951 Census.

which amounted to 1,588,837, was only 229,000 greater than the natural increase. A feature of this period was the rapid growth of population in Western Canada, partly the result of immigration and partly the result of an influx of people from Eastern Canada. During 1931-41, the population increase was just under 11 p.c. During the depressed conditions of the 1930's, marriage and birth rates were significantly lower and only 150,000 immigrants came to Canada, although, in addition, 75,000 Canadians returned from the United States. Emigration was also much lower than in the previous decades, amounting to an estimated 250,000. Natural increase was only 1,220,000, the crude birth rate falling from 27 per thousand of the population in the 1921-25 period to 24 per thousand in the succeeding five-year period and to 20 per thousand during much of the 1931-41 decade. During 1941-51, population growth was restored to pre-depression levels. Excluding Newfoundland which became part of Canada in 1949, it amounted to 19 p.c.; including Newfoundland it was 22 p.c. Much of the increase took place in the second half of the decade, reflecting heavy postwar immigration and a sharp rise in the marriage and birth rates.

In the 1951-61 period, the population growth rate at 30 p.c. came close to approaching the extremely high rate of the first decade of the century. However, the two periods contrast in many ways. In the early period there was a wider dispersal of population increases as whole regions across the Continent were opened up; in the recent period there was a concentration of growth in urban communities although some spreading of population into newly developed northern areas took place. Natural increase accounted for about 75 p.c. of the growth. Although there was some decline in the death rate, the trend of natural increase reflected very closely that of the crude birth rate which began to rise during the War and remained high throughout the period. Net immigration accounted for the remainder of the increase; during the decade, 1,542,853 immigrants entered the country, more than double the estimated emigration. Although all provinces gained in population during 1951-61, the rates of increase varied widely. The greatest increases resulted from a combination of natural increase and net migration which in the two large provinces of Central Canada and the two most westerly provinces accounted for over 87 p.c. of the total actual increase. In contrast, increases in the other six provinces were entirely accounted for by natural increase.

1.—Numerical Distribution of Population by Province, and Percentage Change from Preceding Census, Decennial Census Years 1901-61

NOTE.—Populations for the decennial census years 1871, 1881 and 1891 are given in the 1956 Year Book, p. 149. The populations of the Prairie Provinces in 1906, 1916, 1926, 1936 and 1946 will be found in the 1951 edition, p. 131, and census populations for 1956 in the 1961 edition, p. 146.

Province or Territory	1901	1911	1921	1931	1941	1951	1961
NUMERICAL DISTRIBUTION							
Nfld.....	1	1	1	1	1	361,416	457,853
P.E.I.....	103,259	93,728	88,615	88,038	95,047	98,429	104,629
N.S.....	459,574	492,338	523,837	512,846	577,962	642,584	737,007
N.B.....	331,120	351,889	387,876	408,219	457,401	515,697	597,936
Que.....	1,648,898	2,005,776	2,360,510	2,874,662	3,331,882	4,055,681	5,259,211
Ont.....	2,182,947	2,527,292	2,933,662	3,431,683	3,787,655	4,597,542	6,236,092
Man.....	255,211	461,394	610,118	700,139	729,744	776,541	821,686
Sask.....	91,279	492,432	757,510	921,785	895,992	831,728	925,181
Alta.....	73,022	374,295	588,454	731,605	796,169	939,501	1,331,944
B.C.....	178,657	392,480	524,582	694,263	817,861	1,165,210	1,629,082
Y.T.....	27,219	8,512	4,157	4,220	4,914	9,096	14,628
N.W.T.....	20,129	6,507	8,143	9,316	12,028	16,004	22,998
Canada.....	5,371,315	7,206,643	8,787,949²	10,376,786	11,506,655	14,009,429	18,238,247

For footnotes, see end of table, p. 178.

1.—Numerical Distribution of Population by Province, and Percentage Change from Preceding Census, Decennial Census Years 1901-61—concluded

Province or Territory	1901	1911	1921	1931	1941	1951	1961
	PERCENTAGE CHANGE FROM PRECEDING CENSUS						
Nfld.....	1	1	1	1	1	1	26.7
P.E.I.....	-5.3	-9.2	-5.5	-0.7	8.0	3.6	6.3
N.S.....	2.0	7.1	6.4	-2.1	12.7	11.2	14.7
N.B.....	3.1	6.3	10.2	5.2	12.0	12.7	15.9
Que.....	10.8	21.6	17.7	21.8	15.9	21.7	29.7
Ont.....	3.2	15.8	16.1	17.0	10.4	21.4	35.6
Man.....	67.3	80.8	32.2	14.8	4.2	6.4	18.7
Sask.....	—	439.5	53.8	21.7	-2.8	-7.2	11.2
Alta.....	—	412.6	57.2	24.3	8.8	18.0	41.8
B.C.....	82.0	119.7	33.7	32.3	17.8	42.5	39.8
Y.T.....	—	-68.7	-51.2	1.8	16.2	85.1	60.8
N.W.T.....	-79.7	-67.7	25.1	14.4	29.1	33.1	43.7
Canada.....	11.1	34.2	21.9	18.1	10.9	21.8	30.2

¹ Populations of Newfoundland (not part of Canada until 1949) were: 1901, 220,984; 1911, 242,619; 1921, 263,033; 1931, 281,500 (estimated); 1941, 303,300 (estimated); and 1945, 321,819. ² Includes 485 members of the Royal Canadian Navy recorded separately in 1921.

2.—Factors in the Growth of Population, 1951-61

Province or Territory	Population 1951 Census	Births	Deaths	Natural Increase	Immigration	Actual Increase	Net Migration	Population 1961 Census
	No.	No.	No.	No.	No.	No.	No.	No.
Nfld.....	361,416	141,165	30,169	110,996	4,200	96,437	-14,559	457,853
P.E.I.....	98,429	26,990	9,369	17,621	1,451	6,200	-11,421	104,629
N.S.....	642,584	187,571	59,278	128,293	19,148	94,423	-33,870	737,007
N.B.....	515,697	165,299	45,838	119,461	9,718	82,239	-37,222	597,936
Que.....	4,055,681	1,348,440	350,140	998,300	325,329	1,203,530	205,230	5,259,211
Ont.....	4,597,542	1,426,211	472,718	953,493	817,292	1,638,550	685,057	6,236,092
Man.....	776,541	220,016	70,326	149,690	66,344	145,145	-4,545	921,686
Sask.....	831,728	238,998	66,674	172,324	30,715	93,453	-78,871	925,181
Alta.....	939,501	345,025	79,830	265,195	112,520	292,443	127,248	1,331,944
B.C.....	1,165,210	355,736	131,945	223,791	155,052	463,872	240,081	1,629,082
Y.T. and N.W.T.	25,100	12,889	3,855	9,034	1,084	12,526	3,492	37,626
Canada.....	14,009,429	4,468,340	1,320,142	3,148,198	1,542,853	4,228,818	1,080,620	18,238,247

Table 3 shows the natural increase and the total population increase for Canada and the provinces in the periods 1941-51, 1951-56 and 1956-61. The balance between the total increase in population and the natural increase during a period represents the difference between inward and outward movements, i.e., net migration. The net migration data shown for provinces indicate the net movement of population arising partly from interchange of population between provinces and partly from persons entering and leaving the country.

3.—Numerical Changes in the Population of the Provinces through Natural Increase and Migration 1941-51, 1951-56 and 1956-61

Province	Natural Increase			Population Increase according to Census			Net Migration		
	1941-51	1951-56	1956-61	1941-51	1951-56	1956-61	1941-51	1951-56	1956-61
Nfld.....	...	51,851	59,145	...	53,658	42,779	...	+1,807	-16,366
P.E.I.....	15,802	8,959	8,662	3,382	856	5,344	-12,420	-8,103	-3,318
N.S.....	103,512	63,133	65,180	64,622	52,133	42,290	-38,890	-11,000	-22,870
N.B.....	99,904	59,774	59,687	58,296	38,919	43,320	-41,608	-20,855	-16,367
Que.....	736,058	476,627	521,673	723,799	572,697	630,333	-12,259	+96,070	+109,160
Ont.....	505,034	430,386	523,107	809,887	807,391	831,159	+304,853	+377,005	+308,052
Man.....	107,510	73,684	78,006	46,797	73,499	71,646	-60,713	-185	-4,380
Sask.....	135,106	86,030	88,294	-64,264	48,937	44,516	-199,370	-37,093	-41,778
Alta.....	150,303	120,961	144,234	143,332	183,615	208,828	-6,971	+62,654	+64,594
B.C.....	116,527	98,206	125,585	347,349	233,254	230,618	+230,822	+135,048	+105,033
Canada¹.....	1,972,394	1,473,211	1,674,987	2,141,358	2,071,362	2,157,456	+168,964	+598,151	+482,469

¹ Includes the Yukon and Northwest Territories.

The earlier movement of population in Canada from east to west has not been apparent since the 1920's. Although British Columbia has continued to show population gains from migration since 1931, much of this gain has been at the expense of the Prairie Provinces. Although the three Prairie Provinces lost by migration about 267,000 persons between 1941 and 1951, they gained 25,000 in the period 1951-56 and 18,000 in the period 1956-61. Manitoba lost almost 61,000 people between 1941 and 1951 but only 5,000 persons since then. Saskatchewan has been a consistent loser since 1941, losing on the average almost 20,000 a year during the 1940's and around 8,000 a year during the 1950's. Alberta lost only about 7,000 in the decade 1941-51 and gained close to 65,000 in each of the five-year periods 1951-56 and 1956-61. British Columbia gained through migration at the rate of about 23,000 a year during the 1940's, about 27,000 a year in the first half of the 1950's and 21,000 annually in the 1956-61 period. On an absolute basis, Ontario received more people through migration than did British Columbia but, in relation to its larger population, the gain was only about one third as important. Most of Ontario's growth through migration was from immigration rather than interprovincial movement of population. Quebec had a slight loss between 1941 and 1951 and a considerable gain in the next ten years, due also to immigration. The Maritimes as a whole lost 175,000 persons over the quarter-century.

MOBILITY OF CANADA'S POPULATION, 1956-1961*

Spatial mobility of people within the national boundaries is one of the basic factors in changing the size of local populations. In areas of major in-migration or out-migration it is likely to alter their population structure as well, since migration tends to be highly selective with respect to certain characteristics of individuals and families involved. Unattached young adults, for example, are likely to be more foot-loose than middle-aged family heads assuming heavy responsibilities both at home and at work. Changes generated by migration in a local population, in turn, will have compounded effects on its future trends by either accelerating or decelerating population growth and structural change. In communities that have been subject to a large influx of young adults, growth dynamics will be strengthened; in communities of origin of young migrants the process of aging and slackening of population growth will be likely to set in. Furthermore, both the immediate and long-range demographic changes set forth by migration will have far-reaching social and economic repercussions. Service demands, housing needs, labour

* Prepared by Miss Y. Kasahara, Central Research and Development Staff, Dominion Bureau of Statistics.

supply and diverse other facets of community life will undergo changes at both the sending and the receiving ends of migration streams. Migration may also create social problems or stimulate fundamental changes in the social and cultural context of community life.

Until recently, paucity of pertinent data on migration in Canada has deterred the progress of research on this phenomenon. With the exception of information collected in the 1941 Census, in fact, no direct data on movement of Canada's population were in existence. Even the 1941 Census data, moreover, are not sufficiently comprehensive to permit intensive analysis. Estimates derived from a 20-p.c. sample of private households in the 1961 Census thus represent a significant landmark in the study of population mobility in Canada. The data provide detailed information on migration over the 1956-1961 period, including mobility status of Canada's population, the magnitude and direction of migration streams, the types of movement, the types of areas of origin and destination of migrants, and characteristics of both migrant and non-migrant population. Related to other facts during this five-year period, these time-oriented data also permit some appraisal of the social and economic 'determinants and consequences' of migration.

Questions on mobility status were asked of all persons 15 years of age or over in each private household in the sample. Mobility status of persons five to 14 years of age as of the 1961 Census date was assumed to be the same as that of the family head. Persons under five years of age—those born since June 1, 1956—were excluded, since migration in this Census was measured in terms of the place of residence on June 1 in 1956 and 1961. Estimates derived thus represent only the population five years of age or over who resided in private households in Canada in the 1961 Census. Persons in collective-type households, such as institutions, hotels and large lodging houses, are not included.*

Concepts and Definitions

Mobility, as used here, refers to spatial or geographic movement. It is to be distinguished from 'social mobility' which refers to a change in socio-economic status. Spatial mobility often precedes or follows social mobility, but not always.

Movement could take place from one apartment to another in the same house or it could span across the country from Newfoundland to British Columbia. Obviously, not all movements may be considered as migratory. Movement within the same neighbourhood, for example, which introduces no fundamental change into the established order of individual and collective life, is not migratory. Long-distance movement, which is likely to involve significant changes in the life conditions of movers as well as in the context of community life, is generally regarded as migratory. Theoretically, however, it is difficult to draw a clear-cut line between 'migratory' and 'non-migratory' movements. In the first place, distance travelled in spatial mobility is on a continuum; where to place a cutting point for separating migrants from non-migratory movers thus becomes inevitably a matter of more or less arbitrary choice. In the second place, although distance of movement is in general associated with the extent of change to be introduced into the life of the individual mover or of the community, the association does not always hold true. Furthermore, these and other conceptual problems are intertwined with various difficulties involved in the measurement of migration. Migration, therefore, has to be defined on an 'operational' basis by imposing some boundary lines to be crossed and a degree of permanence in a shift in residence to be established before a movement may be counted as a case of migration.

In the 1961 Census, migration was defined as a change in the usual place of residence across the municipal boundaries and was measured on the basis of the reported place of residence on June 1 in 1956 and in 1961. Movers within the same municipality constituted a special category but were not treated as migrants. The municipality was chosen as the smallest unit of area for defining migration primarily for the following two reasons: (1) that respondents could report on their past usual place of residence with a reasonably

* More details about the sampling and estimation procedures adopted are given in the Introduction to the *1961 Census of Canada Report, Vol. IV.*

satisfactory degree of accuracy; and (2) that most intermunicipal movers are likely to undergo changes in their community ties and living arrangements. This approach is admittedly arbitrary and is subject to its inherent limitations. Some intermunicipal movers (e.g., migrants between Rockcliffe Park and the east end of the city of Ottawa) may well be shorter-distance movers than some intramunicipal movers (e.g., movers from one end of a large metropolitan city to its other end). So long as area boundaries are used as a basis for distinguishing between migratory and non-migratory movement, this type of problem is unavoidable.

Mobility Status and Type of Movement.—In the 1961 Census, the population was divided into the following categories according to mobility status and type of movement: non-movers—persons who resided in the same dwelling on June 1 in both 1956 and 1961; intramunicipal movers—persons who lived in one dwelling on June 1, 1956, but in another within the same municipality five years later; intraprovincial migrants—persons who lived in a given municipality on June 1, 1956, but in another municipality within the same province five years later; interprovincial migrants between contiguous provinces and between non-contiguous provinces; and migrants from abroad—both Canadian-born and foreign-born. These categories were adopted as rough approximations to a scale of distance of movement spanned. Obviously, the same type of problem as is associated with the definition of migration is involved in this scale. Some interprovincial migrants, for example, may have crossed only a boundary road, while some intraprovincial migrants may have travelled hundreds of miles. On the average, however, distance of movement increases as we go down the list.

Gross and Net Migration.—The total number of migrants into an area and the total number of migrants out of an area both represent gross migration. The first group is defined as in-migration and the second group as out-migration, so long as movement took place within Canada. The balance between the two represents net migration, which may be either net in-migration or net out-migration.

It should be noted, however, that the figure for gross movement falls short of the total number of moves made during the 1956-1961 period because of (1) deaths of movers prior to the 1961 Census and (2) persons who moved more than once over the period, since only one move could be counted in the Census. (In fact, those who returned to their original residence before June 1, 1961 would be in the category of non-movers, since mobility status was measured in terms of the usual place of residence on June 1 in 1956 and in 1961.)

Basic Findings*

Mobility Status of Canada's Population, 1956-1961.—Of the estimated 15,300,000 persons five years of age or over residing in private households in Canada at the time of the 1961 Census, 6,500,000 or 42 p.c. changed their usual place of residence within Canada at least once over the preceding five-year period. Nearly 60 p.c. of these proved to be movers within the same municipality. To put it differently, one out of every four residents in Canada in 1961 was an intramunicipal mover during the five-year period 1956-1961. Of the remaining 40 p.c. of the internal movers, four fifths moved from one municipality to another within the same province, and only one fifth crossed the provincial boundaries. An overwhelming majority of movers in Canada during this period thus appear to have been short-distance movers.

Urban-Rural Differences in Mobility Status.—The dominance of short-distance movers prevailed for all types of communities. The mobility rate, or the number of movers of a given type per 100 population, shows a consistent drop from one category of

* Only a brief summary of the basic findings on the mobility of the total population five years of age or over is presented here. A more detailed analysis is given in a chapter on "Mobility of Population in Canada, 1956-1961," in the *General Review, the 1961 Census of Canada Report, Vol. VII*, and in a forthcoming census monograph on this subject.

movers to another as we go down the list given in Table I, regardless of the type of area involved. The impact of mobility on local communities, however, varied significantly among different types of area.

The urban centres contained a much higher proportion of mobile population than the remainder of the country, indicating the ratio of one mover to every two residents. As expected from housing developments, rapid changes in land use and other primarily urban conditions favouring internal mobility, the intramunicipal mobility of the urban population was significantly higher than that of the rural population. Almost one out of every three urban residents in 1961 had moved within the same municipality during the preceding five years. This was nearly double the corresponding rate for the rural non-farm population and four times as high as that for the rural farm population. The urban inter-provincial in-migration rate was also highest, although its difference from the corresponding rural non-farm rate was only slight. The impact of intraprovincial migration, on the other hand, was strongest on the rural non-farm population, over 45 p.c. of the total internal movers falling in this category. Mobility among the urban population thus represented primarily intramunicipal movement and only secondarily in-migration from different municipalities, while mobility among the rural non-farm population was mainly a function of in-migration. Judged from the mobility status of the residents in 1961, the rural farm population was the most stable; more than 80 p.c. reported the same place of residence for 1956 and 1961.

I.—MOBILITY STATUS OF URBAN, RURAL NON-FARM, RURAL FARM AND TOTAL POPULATION, FIVE YEARS OF AGE OR OVER, BY TYPE OF MOVEMENT, 1961

Type of Movement	Urban		Rural Non-farm		Rural Farm		Total Population	
	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.
Non-movers.....	5,153,278	48.3	1,692,422	60.0	1,503,006	82.9	8,348,706	54.6
Movers within Canada....	5,096,512	47.8	1,087,788	38.6	299,700	16.5	6,484,000	42.3
Intramunicipal.....	3,219,442	30.2	490,160	17.4	154,177	8.5	3,863,779	25.2
Intraprovincial.....	1,444,795	13.5	494,236	17.5	125,444	6.9	2,064,475	13.5
Interprovincial.....	412,961	3.9	96,563	3.4	17,266	1.0	526,790	3.4
Moved, but place of residence in 1956 not stated	19,314	0.2	6,829	0.2	2,813	0.2	28,956	0.2
Migrants from abroad.....	421,349	3.9	38,708	1.4	9,858	0.5	469,915	3.1
Totals.....	10,671,139	100.0	2,818,918	100.0	1,812,564	100.0	15,302,621	100.0

Provincial Differences in Mobility Status.—The over-all mobility status of provincial populations differed significantly by their geographic location. In general, the total mobility rate becomes higher moving across the country from the Atlantic to the Pacific Coast—from 27 p.c. in Newfoundland to almost 49 p.c. in Alberta and British Columbia. The rates for these two western provinces were, in fact, appreciably higher than the rate for Ontario—the most urbanized province in the country. The only significant deviation from this general pattern of increasing mobility from east to west was Saskatchewan. The mobility rates by type of movement, however, did not show such a consistent pattern. The intramunicipal mobility rate was highest in Quebec, followed by Alberta, Ontario and British Columbia in that order. In general, however, the lower rates prevailed in the more rural provinces, while the more urbanized provinces tended to evince intensive intramunicipal mobility. The intraprovincial mobility rate also indicated a more or less direct correlation with the degree of urbanization, with British Columbia leading the other provinces and Newfoundland standing at the bottom of the scale. The

interprovincial in-migration rate was highest in Alberta, with British Columbia following close behind. These two western provinces appear to have been the major centres of attraction to relatively long-distance migrants during this period. In absolute terms, the total interprovincial migrants to Alberta amounted to approximately 80,000 and those to British Columbia nearly 90,000. Surprisingly, the share of interprovincial migration for Ontario was smaller than its degree of industrial urbanization or its strategic location suggested, although the total number of migrants in this category for the province exceeded 150,000—the largest in the country. Quebec, which has traditionally demonstrated a unique pattern of development in many of its demographic features, scored the lowest interprovincial in-migration rate—lower even than that of Newfoundland.

II.—MOBILITY RATES¹ OF POPULATION FIVE YEARS OF AGE OR OVER, FOR THE PROVINCES AND CANADA, 1956-1961

Province	Intra-municipal Movers	Intra-provincial Movers	Inter-provincial Movers	Total Movers within Canada ²
Newfoundland.....	17.9	7.4	1.6	27.1
Prince Edward Island.....	13.7	8.5	5.6	28.0
Nova Scotia.....	18.3	10.5	4.1	33.0
New Brunswick.....	17.6	9.9	4.9	32.6
Quebec.....	27.5	13.3	1.5	42.5
Ontario.....	26.0	14.1	2.8	43.2
Manitoba.....	24.7	10.8	5.4	41.2
Saskatchewan.....	20.6	13.4	4.2	38.5
Alberta.....	26.1	15.1	7.3	48.8
British Columbia.....	25.9	16.6	6.4	48.8
Canada³.....	25.2	13.5	3.4	42.3

¹ Per cent of movers of a given type to total population.
of residence in 1956.

² Includes those who did not state their place

³ Includes the Yukon and Northwest Territories.

Urban-Rural Differences in Gross and Net Migration.—The mobility rate examined above reveals the extent of intramunicipal mobility and in-migration to a given type of community. The effect of out-migration, however, is not evident in this measure; it is only indirectly reflected in the size of the base population. In order to assess the total impact of mobility on a given population, therefore, the two opposing streams of migration as well as their net balance must be examined.

The urban centres during the 1956-1961 period were exposed to strong cross-currents of migration. In every size group of urban areas a high in-migration rate was matched by a correspondingly high out-migration rate. In the absolute volume of in- and out-migration, the largest urban centres with 100,000 or more population overshadowed the others, absorbing over 1,100,000 migrants and sending out almost as many.* The intensity of both streams of migration, however, was greatest among the smallest centres under 10,000 population, while the urban areas between 30,000 and 100,000 population proved to be somewhat more stable than others. If the largest urban communities representing most of the census metropolitan centres are excluded, the migration rate or the impact of migration on a given local population appears to have been inversely correlated with its size.

Contrary to expectations, the effect of the two counteracting streams of migration on the urban population as a whole was a slight net loss.† Although the larger urban centres with 30,000 or more population gained some population through migration (intra- and interprovincial migration combined), the gain for this group was too small to cancel

* These figures include the migrants from one urban centre of 100,000 or over to another in the same size group.

† Exclusion of the residents in collective-type households from the sample universe may well have resulted in an understatement of in-migration to urban centres, since this group with the majority living in urban centres is likely to have contained a larger proportion of highly mobile population than the residents in private households. Even after an allowance is made for the possible understatement of urban in-migration, however, the general pattern remains unchanged.

out the net out-migration from the smaller centres. For the urban centres with less than 30,000 population the total out-migration rate amounted to 25 p.c., while the total in-migration rate was approximately 20 p.c.* The resulting net out-migration thus came to one loss for every 20 residents of these smaller urban centres in 1961.

III.—GROSS AND NET MIGRATION RATES¹ OF POPULATION FIVE YEARS OF AGE OR OVER,
BY TYPE OF MIGRATION AND TYPE OF AREA, 1956-1961

Type of Area	Intraprovincial Migration			Interprovincial Migration		
	In	Out	Net	In	Out	Net
Urban	14.4	14.9	-0.5	4.1	4.2	-0.1
100,000 or over.....	13.8	13.6	0.2	4.4	2.7	0.7
30,000-99,999.....	12.7	11.4	1.4	3.0	3.7	-0.7
10,000-29,999.....	15.0	18.5	-3.5	4.4	5.9	-1.5
Under 10,000.....	17.8	21.2	-3.4	3.8	5.8	-2.0
Rural	14.0	12.9	1.2	2.6	2.4	0.2
Non-farm.....	18.5	8.4	10.1	2.6	1.1	2.5
Farm.....	7.2	19.6	-12.4	1.0	4.3	-3.3

¹ The base population excludes those movers who did not report their place of residence in 1956. The migrants from rural areas who did not state the type of rural residence in 1956 are distributed into rural non-farm and farm categories according to the reported distribution.

As will be discussed below, the majority of urban migrants were interurban movers, generating population shifts among individual urban centres alone. It should be noted, however, that the net interchange of population between urban and rural non-farm communities during this period was invariably in favour of the latter, regardless of the size of the urban areas involved. Some net migration gain witnessed among the larger urban centres, in fact, represented a balance between a net gain from smaller urban centres and rural farms on one hand and a net loss to rural non-farm communities on the other. The smaller urban centres suffered a net loss due to out-migration to rural non-farm communities as well as a drain toward larger urban centres, despite a sizable in-migration of rural farm population.

The counterpart of this picture is revealed in the migration rates for the rural non-farm population. The total in-migration rate here, heavily weighted by a very high intra-provincial in-migration, was higher than in any other type of area in the country. Coupled with the lowest total out-migration rate, this yielded the highest net migration rate for the rural non-farm population; the ratio of net gain to the total resident population in 1961 was almost as high as 13 p.c. Furthermore, approximately two thirds of its total gain represented the net in-migration from urban centres and the remaining one third the net in-migration from farms.

The rural farm population, on the other hand, indicated a pattern almost diametrically opposite to that of the rural non-farm population, combining the lowest in-migration rate and nearly as high an out-migration rate as the smaller urban centres. If judged from the intramunicipal mobility and in-migration rates, the rural farm population appeared to be the most stable. In the light of the out-migration rate, it was among the most mobile. The consequent net out-migration rate proved to be by far the highest in the country; for every 100 rural farm residents in 1961 there was a net loss of nearly 16 due to migration. About 60 p.c. of the exodus from rural farms was toward urban centres. For the urban centres, however, this farm-to-city stream was a relatively small portion of their over-all mobility; it constituted less than 12 p.c. of the total migrants residing in urban centres in 1961.

* The total in-migration (or out-migration) rate refers to the sum of intraprovincial and interprovincial in-migrants (or out-migrants) per 100 resident population in 1961.

In the earlier periods when Canada was undergoing the initial stage of intensive industrial urbanization, the major stream of migration appears to have been from the countryside to the city. The technological revolution in agriculture tended to operate as a compulsive force to stimulate out-migration of rural farm population, while industrial centres beckoned rural youth with superior employment opportunities and amenities of urban life. This phenomenon may be regarded as an ecological process of adjustment of local populations to the changing social and economic order of the country. At the places of origin it may be looked upon as a major force to transform their population dynamics or as a drain on their economically productive resources. At the places of destination, it may be viewed as a problem of social adjustment, or as a generator of social and economic change. Migration from farms to cities has thus been a focus of interest and concern for a long time. Now that the majority of Canada's population is urban, however, it is expected that the major stream of migration should be interurban. Although farm-to-city movement has persisted, its relative importance in the total migration in Canada has diminished.

Of the 2,600,000 migrants within Canada over the 1956-1961 period, the share of urbanward migrants from farms was less than 9 p.c. The total number of interurban migrants, on the other hand, approached 1,500,000 or 57 p.c. of the total migration. Among these interurban migrants, the predominant pattern was the movement to communities of more or less the same size as their previous place of residence or to larger centres. Less than 20 p.c. moved to smaller places. Another notable feature of migration flow during this period was an apparently growing propensity of urban population to move away from the city. This tendency is indicated in the volume of migratory flow from urban to rural non-farm communities; nearly 15 p.c. of the total migrants in Canada were in this category. Among those migrants who resided in urban areas in 1956, almost 20 p.c. reported their residence in 1961 in rural non-farm communities. Apparently, this is a reflection of the progress of extensive suburbanization during this period. It appears that the suburban sprawl was not confined within the urban fringe of the large metropolitan centres,* but has been extending beyond the urban boundaries as defined in the census. Judged from the figures of interchange of population between different urban size groups and rural non-farm communities, moreover, suburban development seems to have been progressing at a brisk pace not only around the large metropolitan centres but also in areas surrounding the smaller urban centres.

Provincial Differences in Gross and Net Migration.†—The rate of in-migration across the provincial boundaries was highest in Alberta, closely followed by British Columbia. Nearly 170,000 or 32 p.c. of the total interprovincial migrants five years of age or over were divided between these two western provinces, slightly in favour of British Columbia. Although the absolute gain due to in-migration to Ontario, exceeding 150,000, was the largest in the country and the corresponding figure for Quebec approached 70,000, these two most urbanized provinces showed the lowest in-migration rate during this period with the exception of Newfoundland. Among the other provinces, the differences in the in-migration rate were quite small.

* An analysis of the process of suburbanization around the metropolitan cities is the subject of a chapter in a forthcoming census monograph, *Mobility of Canada's Population, 1956-1961*.

† The Yukon and Northwest Territories are included in the following tables but are excluded from the textual analysis.

The out-migration rate was highest in Saskatchewan and lowest in Quebec. Ontario and Newfoundland, which showed relatively low in-migration rates, stood in the lower range of the scale in the out-migration as well. Alberta and British Columbia, which were exposed to intensive in-migration during this period, indicated the out-migration rate in the medium range; all other provinces fell between these two provinces and Saskatchewan in this score. In general, the provinces with a low in-migration rate were low in the out-migration rate as well, and the provinces with a high in-migration rate tended to be subject to a moderately high out-migration rate. Other provinces which showed a relatively high in-migration rate, on the other hand, were subjected to a considerably higher out-migration rate.

In net terms, British Columbia, which combined a high in-migration rate with a moderate out-migration rate, showed the highest relative gain. Alberta, whose in-migration rate was the highest in the country, stood second in this respect because of a somewhat higher out-migration rate than British Columbia. Ontario also gained slightly through interprovincial migration, although it showed low rates in both in-migration and out-migration. All other provinces suffered a slight net loss.

IV.—GROSS AND NET INTERPROVINCIAL MIGRATION RATES OF POPULATION FIVE YEARS OF AGE OR OVER, FOR THE PROVINCES AND TERRITORIES, 1956-1961

Province or Territory	Estimated Total Population ¹	Migrants per 100 Population		
		In	Out	Net
	No.	No.	No.	No.
Newfoundland.....	374,769	1.6	2.8	-1.2
Prince Edward Island.....	87,055	5.6	6.9	-1.3
Nova Scotia.....	607,084	4.1	6.6	-2.5
New Brunswick.....	492,126	4.9	6.0	-1.1
Quebec.....	4,288,377	1.6	1.7	-0.2
Ontario.....	5,040,286	3.0	2.3	0.7
Manitoba.....	753,190	5.5	7.6	-2.1
Saskatchewan.....	767,280	4.2	8.6	-4.4
Alberta.....	1,058,696	7.5	5.9	1.6
British Columbia.....	1,308,972	6.7	4.1	2.5
Yukon and Northwest Territories.....	25,915	24.0	26.6	-2.6

¹ Excludes those who did not report their usual place of residence in 1956.

The net gain for the two western provinces of British Columbia and Alberta stemmed primarily from Saskatchewan. Although the absolute volume of outflow from Alberta to British Columbia was much larger than that from Saskatchewan, the net effectiveness of migration from Alberta to British Columbia was reduced substantially by a sizable counter-flow. Ontario, the third gaining province, received most migrants from Quebec, although it was also a major source of migrants to Quebec. The prevailing picture for the gaining provinces was thus the dominance of the contribution made by migrants from neighbouring

provinces in their net gain. For the losing provinces, in general, Ontario emerged not only as the major centre of attraction to their out-migrants but also as the major supply area of migrants. Regardless of the geographic location of a given province, the strong influence of Ontario in this respect persisted. The only exception to this general pattern was Saskatchewan, which interchanged population primarily with Alberta and British Columbia.

V.—INTERPROVINCIAL MIGRANTS FIVE YEARS OF AGE OR OVER,
BY PROVINCE OF ORIGIN AND OF DESTINATION, 1956-1961

Destination	Origin											Total
	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	
Newfoundland.....	...	221	1,325	685	872	2,093	258	77	239	179	50	5,999
Prince Edward Island.....	53	...	1,592	813	469	1,273	168	137	165	145	62	4,877
Nova Scotia.....	1,934	1,031	...	4,038	3,249	10,118	1,262	447	806	2,010	160	25,055
New Brunswick.....	699	1,059	7,452	...	4,262	7,572	1,221	206	664	994	98	24,227
Quebec.....	1,454	485	4,442	8,808	...	40,629	3,416	925	2,928	3,009	413	66,509
Ontario.....	4,980	2,410	18,832	12,399	53,941	...	19,356	8,968	12,666	15,154	1,529	150,235
Manitoba.....	313	118	1,342	508	2,304	15,117	...	10,620	5,503	5,047	379	41,251
Saskatchewan.....	216	80	373	212	866	5,964	8,671	...	9,653	5,835	516	32,386
Alberta.....	457	317	1,581	950	3,418	14,494	10,091	26,039	...	20,344	1,807	79,498
British Columbia.....	511	203	3,241	944	4,500	17,542	12,336	17,974	28,225	...	1,882	87,358
Yukon and Northwest Territories.....	55	52	152	140	384	1,159	429	570	1,862	1,411	...	6,214
All Migrants.....	10,672	5,976	40,332	29,497	74,265	115,961	57,208	65,963	62,711	54,128	6,896	523,609

Conclusion.—The above analysis of the mobility pattern in Canada over the 1956-1961 period dealing with the mobility status and direction of movement of the total population alone scratches only the surface of a mine of data collected in the 1961 Census. A sketch drawn with a broad brush cannot even suggest the total complexity of the effects of selectivity involved in migration upon the structure of local populations and the social and economic contexts of different types of communities. Intensive research is required to point up the full implications of migration for demographic change and potential transformation of the social and economic order of the nation as well as of local communities to be attributable to spatial movement of population.

Subsection 2.—Density of Population

Table 4 shows the density of population in the different provinces and territories of Canada in the census years 1951, 1956 and 1961. Omitting the Yukon and Northwest Territories where population density is exceedingly low, there were 8.66 persons per square mile in Canada as a whole in 1961 compared with 6.65 per square mile in 1951. The greatest increase in the ten years was shown by Ontario where there were 4.76 more persons per square mile, followed by Nova Scotia with an increase of 4.62. However, it should be remembered that all provinces with the exception of the Maritimes have large areas almost devoid of population and that concentrations in other areas are very high.

4.—Land Area and Density of Population, by Province, Census Years 1951, 1956 and 1961

Province or Territory	Land Area	Population 1951		Population 1956		Population 1961	
		Total	Per Sq. Mile	Total	Per Sq. Mile	Total	Per Sq. Mile
	sq. miles	No.	No.	No.	No.	No.	No.
Newfoundland (incl. Labrador).....	143,045	361,416	2.53	415,074	2.90	457,853	3.20
Prince Edward Island.....	2,184	98,429	45.07	99,285	45.46	104,629	47.91
Nova Scotia.....	20,402	642,584	31.50	694,717	34.05	737,007	36.12
New Brunswick.....	27,835	515,697	18.53	554,616	19.93	597,936	21.48
Quebec.....	523,860	4,055,681	7.74	4,628,378	8.84	5,259,211	10.04
Ontario.....	344,092	4,597,542	13.36	5,404,933	15.71	6,236,092	18.12
Manitoba.....	211,775	776,541	3.67	850,040	4.01	921,686	4.35
Saskatchewan.....	220,182	831,728	3.78	880,665	4.00	925,181	4.20
Alberta.....	248,800	939,501	3.78	1,123,116	4.51	1,331,944	5.35
British Columbia.....	359,279	1,165,210	3.24	1,398,464	3.89	1,629,082	4.53
Canada (Exclusive of the Territories).....	2,101,454	13,984,329	6.65	16,049,288	7.64	18,200,621	8.66
Yukon Territory.....	205,346	9,096	0.04	12,190	0.06	14,628	0.07
Northwest Territories.....	1,253,438	16,004	0.01	19,313	0.02	22,998	0.02
Canada.....	3,560,238	14,009,429	3.93	16,080,791	4.52	18,238,247	5.12

The density of each county and census division is given in DBS Census Report 1.1-11 (Catalogue No. 92-540); the density in each of the five largest metropolitan areas is as follows:—

Metropolitan Area	1951		1961	
	Population	Density per Sq. Mile	Population	Density per Sq. Mile
	No.	No.	No.	No.
Montreal—				
City proper.....	1,021,520	20,268	1,191,062	25,256
Fringe area.....	450,331	2,754	918,447	2,057
Toronto—				
City proper.....	675,754	19,374	672,407	19,234
Fringe area.....	534,599	2,583	1,152,074	1,493
Vancouver—				
City proper.....	344,833	7,891	384,522	8,298
Fringe area.....	217,127	767	405,643	872
Winnipeg—				
City proper.....	235,710	9,428	265,429	10,803
Fringe area.....	121,103	645	210,560	879
Ottawa—				
City proper.....	202,045	4,446	268,206	5,902
Fringe area.....	90,431	2,475	161,544	558

Subsection 3.—Rural and Urban Population

For the 1961 Census, all cities, towns and villages of 1,000 or more population, whether incorporated or not, were classed as urban; also classed as urban were the urbanized fringes of census metropolitan and other large urban areas, and the urbanized fringes of certain smaller cities where the city and fringe totalled 10,000 or more persons. The remainder of the population was classed as rural.

Table 5 classifies the 1961 rural population according to farm and non-farm residence and the urban population by size groups; in the latter classification, each municipality (or part) in an urbanized area is allocated to the same size group as the total urbanized area of which it forms a part. The figures show that, in 1961, almost 70 p.c. of Canada's population were urban dwellers and 53 p.c. lived in or on the fringes of urban centres having a population of 30,000 or more. Only about 12 p.c. lived on farms.

5.—Rural Population classified as Farm and Non-farm, and Urban Population classified by Size Group, by Province, Census 1961

Province or Territory	Rural			Urban				
	Farm ¹	Non-farm	Total	1,000 to 9,999	10,000 to 29,999	30,000 to 99,999	100,000 or Over	Total
	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland.....	9,077	216,756	225,833	98,614	48,214	85,192	—	232,020
Prince Edward Island.....	34,514	36,206	70,720	15,591	18,318	—	—	33,909
Nova Scotia.....	56,832	279,663	336,495	75,163	49,065	—	276,284	400,512
New Brunswick.....	62,265	257,658	319,923	80,287	61,815	135,911	—	278,013
Quebec.....	564,826	787,981	1,352,807	606,355	277,549	384,628	2,637,872	3,906,404
Ontario.....	505,699	906,864	1,412,563	631,870	297,834	934,870	2,958,955	4,823,529
Manitoba.....	171,472	161,407	332,879	71,995	51,100	—	465,712	588,807
Saskatchewan.....	304,672	222,418	527,090	109,076	48,142	128,732	112,141	398,091
Alberta.....	285,823	202,910	488,733	158,319	44,096	35,454	605,342	843,211
British Columbia.....	77,540	369,617	447,157	161,256	152,978	—	867,691	1,181,925
Yukon Territory.....	47	9,550	9,597	5,031	—	—	—	5,031
Northwest Territories.....	18	14,042	14,060	8,938	—	—	—	8,938
Canada.....	2,072,785	3,465,072	5,537,857	2,022,495	1,049,111	1,704,787	7,923,997	12,700,390

¹ Excludes 55,615 persons living on farms in localities classed as urban.

Subsection 4.—Populations of Incorporated Cities, Towns and Villages and of Metropolitan Areas

The population of all incorporated cities, towns and villages is classified by size group in Table 6 for the census years 1951, 1956 and 1961. During the ten-year period, the number of such centres increased by 178 and the proportion of the total population living in them rose from 56.7 p.c. to 60.7 p.c. Although there was a slight decrease in the number of centres having fewer than 1,000 persons, the number with over 50,000 increased from 19 to 29 and the proportion of the total population in these larger centres went up from 27.5 p.c. to 29.0 p.c.; the proportion in centres of from 1,000 to 50,000 increased from 26.1 p.c. to 29.3 p.c. in the same comparison.

6.—Populations of Incorporated Cities, Towns and Villages, classified by Size Group, Census Years 1951, 1956 and 1961

Size Group	1951			1956			1961		
	Incor-porated Centres	Popu-lation	P.C. of Total Popu-lation	Incor-porated Centres	Popu-lation	P.C. of Total Popu-lation	Incor-porated Centres	Popu-lation	P.C. of Total Popu-lation
	No.	No.		No.	No.		No.	No.	
Over 500,000.....	2	1,697,274	12.1	2	1,777,145	11.1	2	1,863,469	10.2
Between—									
400,000 and 500,000..	—	—	—	—	—	—	—	—	—
300,000 and 400,000..	1	344,833	2.5	1	365,844	2.3	1	384,522	2.1
200,000 and 300,000..	3	646,076	4.6	4	942,849	5.9	5	1,338,294	7.3
100,000 and 200,000..	4	572,756	4.1	4	576,156	3.6	4	568,056	3.1
50,000 and 100,000..	9	588,436	4.2	12	769,323	4.8	17	1,134,214	6.2
25,000 and 50,000..	24	802,380	5.7	27	929,624	5.8	41	1,431,909	7.9
15,000 and 25,000..	34	636,713	4.5	43	853,341	5.3	43	862,101	4.7
10,000 and 15,000..	29	347,410	2.5	44	527,802	3.3	61	743,474	4.1
5,000 and 10,000..	100	720,077	5.1	117	830,289	5.2	132	922,936	5.1
3,000 and 5,000..	119	477,492	3.3	130	497,818	3.1	151	579,201	3.2
1,000 and 3,000..	409	698,092	5.0	450	772,013	4.8	465	793,465	4.4
Under 1,000.....	1,049	429,683	3.1	1,039	443,922	2.8	1,039	437,207	2.4
Totals.....	1,783	7,941,222	56.7	1,873	9,286,126	57.7	1,961	11,068,848	60.7

The Canadian cities having a population of over 50,000 in 1961 are listed in Table 7. Included also are the years of their incorporation as cities and comparative figures for 1951 and 1956 which are given according to the city boundaries at these respective dates.

7.—Incorporated Cities with Populations of Over 50,000 at the 1961 Census, with Comparable Data for 1951 and 1956

NOTE.—The asterisk (*) indicates a boundary change since the preceding census. Population totals are based on areas as incorporated at each of these dates.

City and Province	Year of Incorporation as City	1951	1956	1961
		No.	No.	No.
Brantford, Ont.....	1877	36,727	51,869*	55,201*
Calgary, Alta.....	1893	129,060	131,780*	249,041*
Edmonton, Alta.....	1904	159,831	226,002*	281,027*
Halifax, N.S.....	1841	85,589	93,301	92,511
Hamilton, Ont.....	1846	208,221	239,625*	273,991*
Hull, Que.....	1875	43,483	49,243*	56,929*
Kingston, Ont.....	1846	33,459	48,618*	53,528
Kitchener, Ont.....	1912	44,867	59,562*	74,485*
London, Ont.....	1855	95,243	101,693*	169,569*
Montreal, Que.....	1832	1,021,520	1,109,439*	1,191,062*
Oshawa, Ont.....	1924	41,545	50,412	62,415
Ottawa, Ont.....	1855	202,045	222,129	268,206
Quebec, Que.....	1832	164,016	170,703	171,979
Regina, Sask.....	1903	71,319	89,755*	112,141*
Saint John, N.B.....	1785	50,779	52,491	55,153
St. Catharines, Ont.....	1876	37,984	39,708*	84,472*
St. John's, Nfld.....	1888	52,873	57,078	63,633
St. Michel, Que.....	1952	10,539	24,706	55,978
Sarnia, Ont.....	1914	34,697	43,447	50,976
Saskatoon, Sask.....	1906	53,268	72,858*	95,526*
Sherbrooke, Que.....	1875	50,543	58,668*	66,554
Sudbury, Ont.....	1930	42,410	46,482	80,120*
Toronto, Ont.....	1834	675,754	667,706*	672,407
Trois-Rivières, Que.....	1857	46,074	50,483*	53,477*
Vancouver, B.C.....	1886	344,833	365,844*	384,522
Verdun, Que.....	1912	77,391	78,262*	78,317
Victoria, B.C.....	1862	51,331	54,584	54,941
Windsor, Ont.....	1892	120,049	121,980	114,387*
Winnipeg, Man.....	1873	235,710	255,093*	265,429

Census metropolitan areas have been established for groups of urban communities that are in close economic, geographic and social relationship. Table 8 shows the 1961 population of each area with the corresponding 1951 and 1956 figures for the same area as in 1961. As indicated by the last column, most of these metropolitan areas have shown remarkable increases in population during the decade. In 1961 they accounted for 44.8 p.c. of the total population as compared with 40.2 p.c. in 1951.

8.—Populations of Census Metropolitan Areas, 1951, 1956 and 1961

(Areas as of 1961)

Census Metropolitan Area	1951	1956	1961	P.C. Increase 1951-61
	No.	No.	No.	
Calgary, Alta.....	142,315	201,022	279,062	96.1
Edmonton, Alta.....	176,782	254,800	337,568	91.0
Halifax, N.S.....	133,931	164,200	193,946	37.3
Hamilton, Ont.....	280,293	338,294	395,189	41.0
Kitchener, Ont.....	107,474	128,722	154,864	44.1
London, Ont.....	128,977	154,453	181,283	40.6
Montreal, Que.....	1,471,851	1,745,001	2,109,509	43.3
Ottawa, Ont.....	282,476	345,460	429,750	46.9
Quebec, Que.....	276,242	311,604	357,568	29.4
Saint John, N.B.....	78,337	86,015	95,563	22.0
St. John's, Nfld.....	68,620	79,153	90,838	32.4
Sudbury, Ont.....	73,826	97,945	110,694	49.9
Toronto, Ont.....	1,210,353	1,502,253	1,824,481	50.7
Vancouver, B.C.....	561,960	665,017	790,165	40.6
Victoria, B.C.....	113,207	133,829	154,152	36.2
Windsor, Ont.....	163,618	185,865	193,365	18.2
Winnipeg, Man.....	356,813	412,248	475,989	33.4

DISTRIBUTION OF POPULATION IN SOUTHERN MANITOBA

(BASED ON 1961 CENSUS)

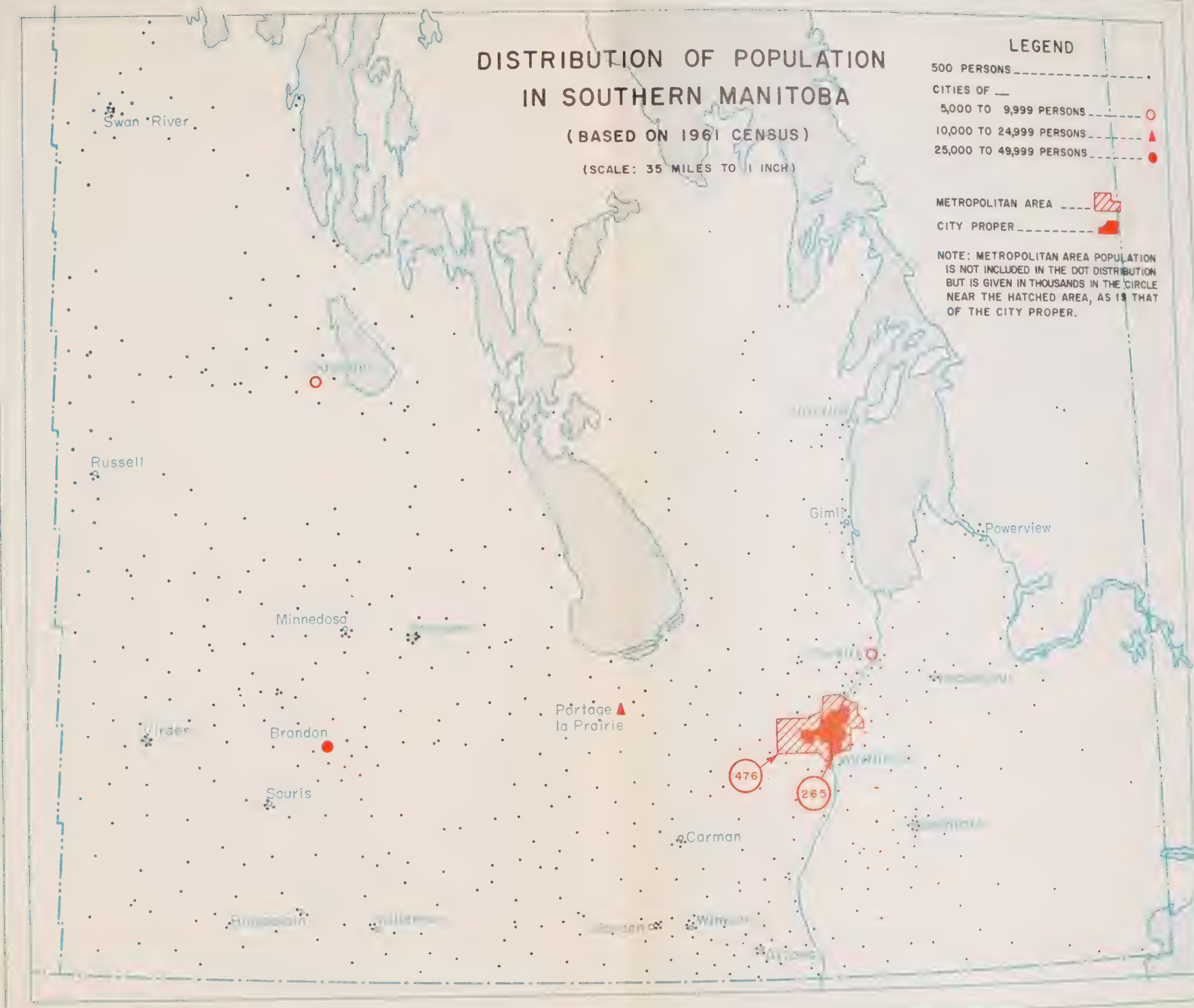
(SCALE: 35 MILES TO 1 INCH)

LEGEND

- 500 PERSONS ————
CITIES OF —
5,000 TO 9,999 PERSONS ———— ○
10,000 TO 24,999 PERSONS ———— ▲
25,000 TO 49,999 PERSONS ———— ●

- METROPOLITAN AREA ———— [Hatched Box]
CITY PROPER ———— [Solid Box]

NOTE: METROPOLITAN AREA POPULATION IS NOT INCLUDED IN THE DOT DISTRIBUTION BUT IS GIVEN IN THOUSANDS IN THE CIRCLE NEAR THE HATCHED AREA, AS IS THAT OF THE CITY PROPER.



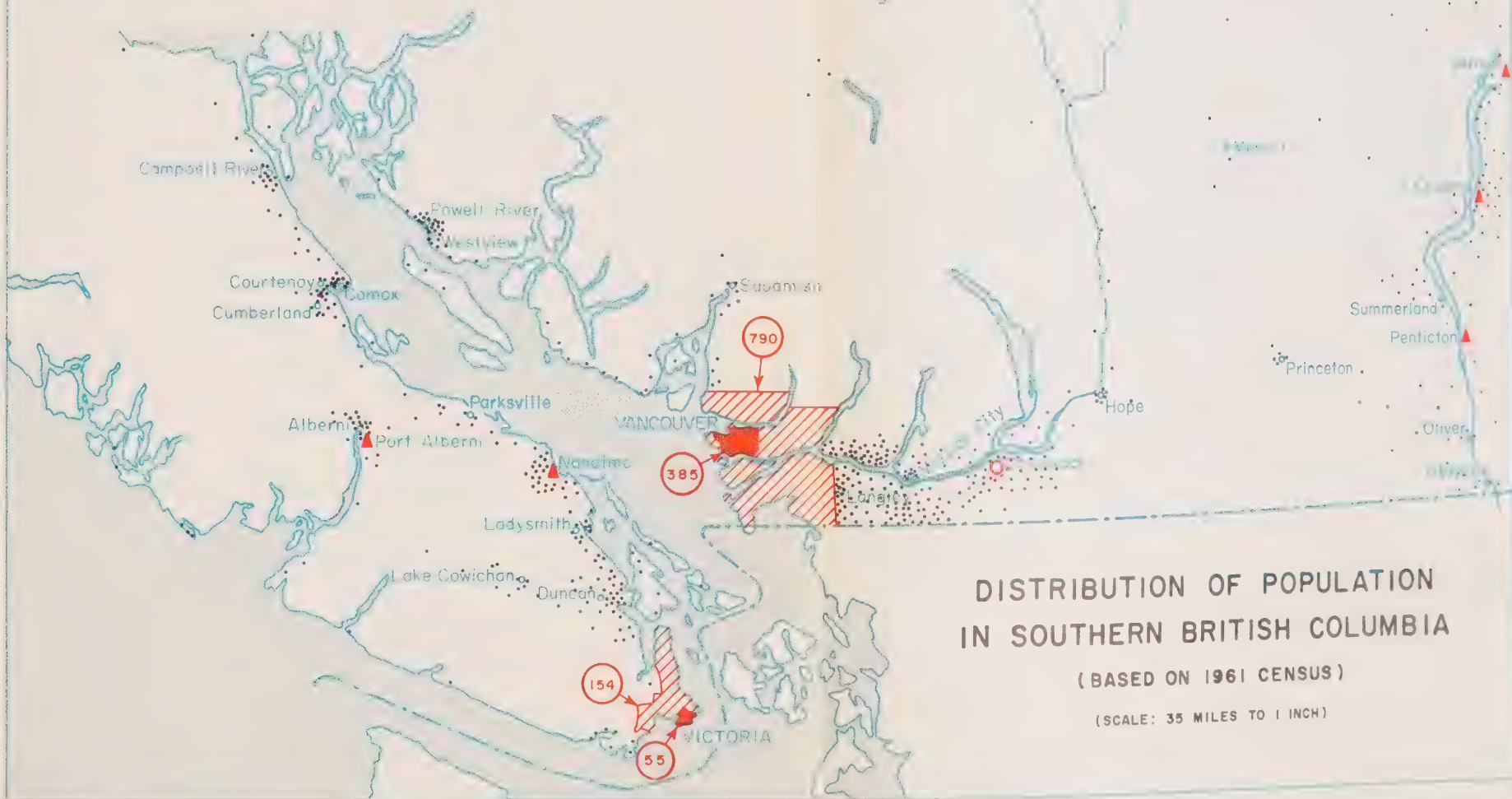
NOTE: Maps showing the distribution of population in the Great Lakes and St. Lawrence River Region of Ontario and Quebec, prepared on the same scale, were included in the 1965 Canada Year Book.

LEGEND

500 PERSONS -----
 CITIES OF -----
 5,000 TO 9,999 PERSONS ----- ○
 10,000 TO 24,999 PERSONS ----- ▲

METROPOLITAN AREAS ----- 
 CITIES PROPER ----- 

NOTE: METROPOLITAN AREA POPULATION IS NOT INCLUDED IN THE DOT DISTRIBUTION BUT IS GIVEN IN THOUSANDS IN THE CIRCLE NEAR THE HATCHED AREA, AS IS THAT OF THE CITY PROPER.



DISTRIBUTION OF POPULATION IN SOUTHERN BRITISH COLUMBIA

(BASED ON 1961 CENSUS)

(SCALE: 35 MILES TO 1 INCH)

NOTE: Maps showing the distribution of population in the Great Lakes and St. Lawrence River Region of Ontario and Quebec, prepared on the same scale, were included in the 1965 Canada Year Book.

The 922 incorporated urban centres in Canada having a population of 1,000 or more at the time of the 1961 Census are listed alphabetically by province in Table 9 and their populations given for the two census years 1956 and 1961. Each population figure is for the boundary in effect at the time of the respective census.

9.—Incorporated Cities, Towns and Villages having Populations of 1,000 or Over in 1961, by Province, Census Years 1956 and 1961

NOTE.—Population totals are based on areas as incorporated at each of these dates; a change in municipal boundary since the preceding census is indicated by an asterisk (*). Urban centres are designated in this table by the following abbreviations: c.=city, t.=town, and v.=village.

Province and Incorporated Centre	1956	1961	Province and Incorporated Centre	1956	1961
	No.	No.		No.	No.
Newfoundland—			Nova Scotia—concluded		
Bay Roberts, t.....	1,306	1,328	Louisburg, t.....	1,814	1,417
Botwood, t.....	1	3,680	Lunenburg, t.....	2,859	3,056
Burgeo, t.....	1,138	1,454	Mahone Bay, t.....	1,109	1,103
Burin, t.....	1,116	1,144	Middleton, t.....	1,769	1,921
Carbonear, t.....	3,955	4,234	Mulgrave, t.....	1,227	1,145
Catalina, t.....	1	1,110	New Glasgow, t.....	9,998	9,782
Channel-Port aux Basques, t.....	3,220	4,141	New Waterford, t.....	10,381	10,592
Clarenville, t.....	1,195	1,541	North Sydney, t.....	8,125	8,667
Corner Brook, c.....	23,225	25,185	Oxford, t.....	1,545	1,471
Deer Lake, t.....	3,481	3,998	Parrsboro, t.....	1,849	1,834
Fogo, t.....	1,184	1,152	Pictou, t.....	4,564	4,534
Fortune, t.....	1,194	1,360	Port Hawkesbury, t.....	1,078	1,346*
Freshwater, t.....	1,048	1,396	Shelburne, t.....	2,337	2,408
Gander, t.....	1	5,725	Springhill, t.....	7,348	5,836
Glovertown, t.....	604	1,197*	Stellarton, t.....	5,445	5,327
Grand Bank, t.....	2,430	2,703*	Stewiacke, t.....	1,024	1,042
Harbour Breton, t.....	1	1,076	Sydney, c.....	32,162	33,617
Harbour Grace, t.....	2,545	2,650	Sydney Mines, t.....	8,731	9,122
Lewisporte, t.....	2,076	2,702	Trenton, t.....	3,240	3,140
Marystown, t.....	1,460	1,691	Truro, t.....	12,250	12,421
Mount Pearl, t.....	1,979	2,785	Westville, t.....	4,247	4,159
Placentia, t.....	1,233	1,610	Windsor, t.....	3,651	3,823
St. Anthony, t.....	1,761	1,820	Wolfville, t.....	2,497	2,413
St. John's, c.....	57,078	63,633	Yarmouth, t.....	8,095	8,636
St. Lawrence, t.....	1,837	2,095			
Stephenville, t.....	5,762	6,043	New Brunswick—		
Stephenville Crossing, t.....	1	2,209	Bathurst, t.....	5,267	5,494*
Wabana, t.....	7,873*	8,026	Campbellton, c.....	8,389	9,873*
Wesleyville, t.....	1,313	1,285	Chatham, t.....	6,332	7,109
Windsor, t.....	4,520	5,505	Dalhousie, t.....	5,468	5,856
			Dieppe, t.....	3,876*	4,032
Prince Edward Island—			Edmundston, c.....	11,997	12,791
Charlottetown, c.....	16,707	18,318*	Fredericton, c.....	18,303	19,683
Montague, t.....	1,152	1,126	Grand Falls, t.....	3,672	3,983
Parkdale, v.....	1,422	1,735	Hartland, t.....	1,022	1,025
St. Eleanor's, v.....	1	1,002	Lancaster, c.....	12,371	13,848
Sherwood, v.....	1	1,580	Marysville, t.....	2,538	3,233
Souris, t.....	1,449	1,537	Milltown, t.....	1,975	1,892
Summerside, t.....	7,242	8,611	Moncton, c.....	36,003*	43,840*
			Newcastle, t.....	4,670	5,236
Nova Scotia—			Oromocto, t.....	661	12,170*
Amherst, t.....	10,301	10,788	St. Andrews, t.....	1,534	1,531
Antigonish, t.....	3,592*	4,344	St. George, t.....	1,322	1,133
Berwick, t.....	1,134	1,282	Saint John, c.....	52,491	55,153
Bridgetown, t.....	1,041	1,043	St. Leonard, t.....	1,593	1,666
Bridgewater, t.....	4,445	4,497	St. Stephen, t.....	3,491	3,380*
Canso, t.....	1,261	1,151	Sackville, t.....	2,849	3,038
Dartmouth, c.....	21,093	46,966*	Shediac, t.....	2,173	2,159
Digby, t.....	2,145*	2,308	Shippegan, t.....	1,362	1,631
Dominion, t.....	2,964	2,999	Sussex, t.....	3,403	3,457
Glace Bay, t.....	24,416	24,186	Woodstock, t.....	4,308	4,305
Halifax, c.....	93,301	92,511			
Hantsport, t.....	1,298	1,381	Quebec—		
Inverness, t.....	2,026	2,109	Acton Vale, t.....	3,547	3,957
Kentville, t.....	4,937*	4,612	Alma, c.....	10,822*	13,309*
Liverpool, t.....	3,500	3,712*	Amos, t.....	5,145	6,080
Lockeport, t.....	1,207	1,231	Amqui, v.....	3,247	3,659

**9.—Incorporated Cities, Towns and Villages having Populations of 1,000 or Over in 1961,
by Province, Census Years 1956 and 1961—continued**

Province and Incorporated Centre	1956	1961	Province and Incorporated Centre	1956	1961
	No.	No.		No.	No.
Quebec—continued			Quebec—continued		
Anjou, t.....	2,140	9,511	Disraeli, v.....	2,473	3,079
Arthabaska, t.....	2,399*	2,977	Dolbeau, t.....	5,079	6,052
Arvida, c.....	12,919	14,460	Dollard des Ormeaux, t.....	1	1,248
Asbestos, t.....	8,969*	11,083*	Donnacoona, t.....	4,147	4,812*
Auteuil, t.....	1	2,603	Dorion, t.....	3,089*	4,996*
Ayersville, v.....	2,348	2,957	Dorval, c.....	14,055*	18,592*
Aylmer, t.....	5,294	6,286	Drummondville, c.....	26,284*	27,909*
Bagotville, t.....	4,822	5,629	Drummondville W., v.....	1,606	2,057
Baie Comeau, t.....	4,332	7,956*	Duvernay, t.....	1	10,939
Baie de Shawinigan, v.....	1,137	1,085	East Angus, t.....	4,239	4,756
Baie d'Urfé, t.....	1,838*	3,549	East Broughton Station, v.....	1,060	1,136
Baie St. Paul, v.....	4,052	4,674	Fabreville, t.....	1	5,213*
Barraute, v.....	1,081	1,199	Farnham, c.....	5,843*	6,354
Beaconsfield, t.....	5,496	10,064	Ferme Neuve, v.....	1,891	1,971
Beauceville, t.....	1,459*	1,645*	Forestville, t.....	1,117	1,529
Beauceville E., t.....	1,740*	1,920	Fort Chambly, t.....	1,885	1,987
Beauharnois, c.....	6,774	8,704*	Fort Coulonge, v.....	1,633	1,823
Beauport, t.....	6,735*	9,192*	Gagnon, t.....	1	1,900
Beaupré, v.....	2,381	2,587	Gaspé, t.....	2,194	2,603
Bedford, t.....	2,272	2,555*	Gatineau, t.....	8,423	13,022*
Beebe Plain, v.....	1,363	1,363	Giffard, c.....	9,964	10,129*
Beloeil, t.....	3,966*	6,283	Granby, c.....	27,095*	31,463*
Bernierville, v.....	2,431	2,706	Grande Rivière, v.....	1,024	1,176
Berthierville, t.....	3,504	3,708*	Grand'Mère, c.....	14,023	15,806
Bic, v.....	1,112	1,177	Greenfield Park, t.....	4,417	7,807*
Black Lake, t.....	3,685	4,180	Grenville, v.....	1,277	1,320
Bois des Filion, v.....	1,648	2,499	Hampstead, t.....	4,355	4,557
Boucherville, t.....	3,911*	7,403	Hauterive, t.....	1,762*	5,980
Bourlambaque, t.....	3,018	3,344	Hébertville Station, v.....	1,214	1,257
Bromptonville, t.....	2,316	2,726	Hudson, v.....	1,549	1,671
Brossard, t.....	1	3,778	Hudson Heights, v.....	1,289	1,540
Brownsburg, v.....	3,412	3,617	Hull, c.....	49,243*	56,929*
Buckingham, t.....	6,781*	7,421*	Huntingdon, t.....	2,995*	3,134
Cabano, v.....	2,350	2,695	Iberville, t.....	6,270	7,588
Cadillac, t.....	1,281	1,077	Ile Perrot, t.....	2,600	3,106
Campbell's Bay, v.....	1,029	1,024	Isle Malin, t.....	1,761*	2,070
Candiac, t.....	1	1,050	Jacques Cartier, c.....	33,132	40,807*
Cap Chat, v.....	1,954	2,035	Joliette, c.....	16,940*	18,088
Cap de la Madeleine, c.....	22,943	26,925	Jonquière, c.....	25,550*	28,588*
Causapsal, v.....	2,957	3,463*	Kénogami, c.....	11,309*	11,816
Chambly, t.....	2,817	3,737*	Knowlton, v.....	1,328	1,396
Chambord, v.....	1,091	1,188	Labelle, v.....	1,150	1,224
Chandler, t.....	3,338*	3,406	Lac au Saumon, v.....	1,681	1,548
Chapais, t.....	380	2,363	Lac Etchemin, v.....	1	2,297
Charlemagne, v.....	2,428	3,068	Lachine, c.....	34,494	38,630*
Charlesbourg, c.....	8,202	14,308*	Lachute, t.....	6,911	7,560
Charny, v.....	3,639	4,189	Lac Mégantic, t.....	6,864	7,015
Château d'Eau, t.....	918	1,057	Lacolle, v.....	1,141	1,187
Châteauguay, t.....	3,265	7,570	Lafleche, c.....	9,958	10,984*
Châteauguay Centre, t.....	1	7,591	Lafontaine, v.....	1	1,556
Châteauguay Heights, t.....	1,146	1,221	La Guadeloupe, v.....	1,487	1,728
Chibougamau, t.....	1,262	4,765	La Malbaie, t.....	2,817	2,580
Chicoutimi, c.....	24,878	31,657*	L'Annonciation, v.....	783*	1,042*
Chicoutimi N., c.....	6,446*	11,229*	La Pêrade, v.....	1,282	1,184
Chomedey, c.....	16,677	30,445	La Petite Rivière, t.....	1,353	4,707
Chute aux Outardes, v.....	923	1,326	La Prairie, t.....	5,372	7,328*
Clermont, v.....	2,628	3,114	La Providence, v.....	3,826*	4,251
Coaticook, t.....	6,492	6,906	LaSalle, c.....	18,973	30,904
Contrecoeur, v.....	1,662	2,007	La Sarre, t.....	3,155*	3,944
Cookshire, t.....	1,315	1,412	L'Assomption, t.....	3,683	4,448*
Côte St. Luc, c.....	5,914*	13,266*	La Station du Coteau, v.....	986	1,032
Courville, t.....	3,772	4,670	La Tuque, t.....	11,096	13,023
Cowansville, t.....	5,242	7,050*	Laurentides, t.....	1,513	1,698*
Crabtree, v.....	1,103	1,313	Lauzon, c.....	10,255	11,523
Danville, t.....	2,296	2,562	Laval des Rapides, t.....	11,248	19,227*
Delson, t.....	816	2,075*	Laval W., t.....	3,818	5,440*
Desbiens, t.....	2,014	1,970	Lavaltrie, v.....	917	1,034
Deschailons sur St. Laurent, v.....	1,266	1,283	LeMoyne, t.....	5,662	8,057*
Deschambault, v.....	1,002	1,056	Lennoxville, t.....	3,149	3,699
Deschênes, v.....	1,680	2,090	L'Epiphanie, v.....	2,671	2,663

For footnotes, see end of table, p. 197.

9.—Incorporated Cities, Towns and Villages having Populations of 1,000 or Over in 1961,
by Province, Census Years 1956 and 1961—continued

Province and Incorporated Centre	1956	1961	Province and Incorporated Centre	1956	1961
	No.	No.		No.	No.
Quebec—continued			Quebec—continued		
Léry, t.	1,573	1,957	Rimouski E., v.	1,209	1,581
Les Saules, t.	1	4,098	Rivière des Prairies, t.	6,806	10,054*
Lévis, c.	13,644	15,112	Rivière du Loup, c.	9,964	10,835
Linéire, v.	1,149	1,269	Rivière du Moulin, v.	4,138	4,386
L'Isletville, v.	1,051	1,184	Robertsonville, v.	1,030	1,156
L'Isle Verte, v.	1,456	1,517	Roberval, c.	6,648	7,739*
Longueuil, c.	14,332	24,131*	Rock Island, t.	1,608	1,608*
Loretteville, t.	4,957	6,522	Rosemere, t.	1	6,158
Louiseville, t.	4,392	4,138	Rouyn, c.	17,076*	18,716
Luceville, v.	1,265	1,419	Roxboro, t.	1,910*	6,298*
Macamic, t.	1,388	1,614	Ste. Adèle, v.	1,309	1,331
Magog, c.	12,720*	13,139	St. Agapitville, v.	1,079	1,117
Malartic, t.	6,818	6,998	Ste. Agathe des Monts, t.	5,173	5,725
Maniwaki, t.	5,399*	6,349	St. Ambroise, v.	1,305	1,576
Maple Grove, t.	1,115	1,412	St. André Avellin, v.	923	1,066
Marieval, t.	3,478*	3,809	St. André E., v.	1	1,183
Masson, v.	1,656	1,933	Ste. Anne de Beaupré, v.	1,865	1,878
Matane, t.	8,069	9,190*	Ste. Anne de Bellevue, t.	3,647	4,044
McMasterville, v.	1,738	2,075*	Ste. Anne de la Pocatière, v.	1	3,086
Melocheville, v.	1,422	1,666	St. Anselme, v.	1,086	1,131
Mistassini, t.	2,912	3,461	St. Antoine des Laurentides, v.	2,092	3,005
Montebello, v.	1,287	1,486*	St. Basile S., v.	1,635*	1,709
Mont Joli, t.	6,179	6,178*	St. Bruno, v.	913	1,158
Mont Laurier, t.	5,486	5,859	St. Bruno de Montarville, t.	1	6,760
Montmagny, t.	6,405	6,850	St. Casimir, v.	1,447	1,386
Montmorency, t.	6,077	5,985	St. Céaire, v.	1,739	2,307
Montreal, c.	1,109,439*	1,191,062*	St. Coeur de Marie, v.	1,282	1,302
Montreal E., t.	4,607	5,884	Ste. Croix, v.	1,241	1,363
Montreal N., c.	25,407	48,423	St. Cyrille, v.	1,198	1,138
Montreal W., t.	4,370*	6,446	St. Denis, v.	944	1,063
Mount Royal, t.	16,990*	21,182	Ste. Dorothee, t.	1,158	5,297*
Murdochville, t.	1,694	2,951	St. Elzéar, t.	2,589	4,150
Napierville, v.	1,510*	1,812	St. Émile, v.	1,645	1,806
Naudville, t.	2,894*	4,475	St. Eustache, t.	3,740*	5,463*
Nicolet, t.	3,771	4,441*	St. Eustache sur le Lac, t.	5,830*	7,274
Noranda, c.	10,322	11,477	St. Félicien, t.	4,152*	5,133
Normandin, v.	1,918	1,838	Ste. Félicité, v.	812	1,057
Notre Dame de Lorette, v.	3,464	3,961	St. Félix de Valois, v.	1,323	1,399
Notre Dame d'Hébertville, v.	1,542	1,604	Ste. Foy, c.	14,615	29,716*
Notre Dame de Portneuf, v.	1,251	1,380	St. François, t.	1	5,122*
Notre Dame du Lac, v.	1,512	1,695	St. Fulgence, v.	1,054	1,094
Omerville, v.	907	1,094	St. Gabriel de Brandon, v.	3,265*	3,425
Ormstown, v.	1,347	1,527	Ste. Geneviève, t.	2,041	2,397
Orsainville, t.	1	4,226	St. Georges (Beauce Co.), t.	3,197	4,082*
Outremont, c.	29,990	30,753	St. Georges (Champlain Co.), v.	1,454*	1,775
Papineauville, v.	1,141	1,300	St. Georges W., t.	3,643	4,755*
Parent, v.	1,443	1,298	St. Germain de Grantham, v.	919	1,015
Pierrefonds, t.	1	12,171*	St. Hilaire, v.	2,000	2,911
Pierreville, v.	1,589	1,559	St. Honoré, v.	891	1,009
Pincourt, t.	1,427	2,685	St. Hubert, t.	1	14,380
Plessisville, t.	5,529	6,570	St. Hyacinthe, c.	20,430*	22,354
Pointe au Pic, v.	1,220	1,323	St. Jacques, v.	1,979	2,038
Pointe aux Trembles, c.	11,981	21,926	St. Jean, c.	24,367*	26,988
Pointe Claire, c.	15,208*	22,709	St. Jean de Boischatel, v.	1,461	1,576
Pointe Gatineau, t.	6,175	8,854	St. Jean Eudes, v.	2,560	2,873
Pont Rouge, v.	2,631	2,988	St. Jérôme (Lac St. Jean Co.), v.	1,505	1,962
Port Viau, c.	8,218	16,077*	St. Jérôme (Perrebonne Co.), c.	20,645	24,546*
Port Alfred, t.	7,968*	9,066*	St. Joseph (Beauce Co.), v.	2,434	2,484
Port Cartier, t.	1	3,458	St. Joseph (St. Hyacinthe Co.), v.	2,708	3,799
Préville, t.	496	1,001	St. Joseph de la Rivière Bleue, v.	1,481	1,540
Price, v.	3,140	3,094	St. Joseph de Sorel, t.	3,571	3,588
Princeville, v.	2,841	3,174	St. Jovite, v.	1,613	2,692*
Quebec, c.	170,703	171,979	St. Lambert, c.	12,224	14,531
Quebec W., t.	7,945	8,733	St. Laurent, c.	38,291*	49,805*
Rawdon, v.	2,049	2,388	St. Léonard de Port Maurice, t.	925	4,893
Repentigny, t.	1	9,139	St. Marc des Carrières, v.	2,457	2,622
Richelieu, v.	1,398	1,612	Ste. Marie, t.	3,094	3,662
Richmond, t.	3,849	4,072	St. Michel, c.	24,706	55,978
Rizaud, t.	1,784	1,990	St. Noël, v.	1,027*	1,124
Rimouski, t.	14,630	17,739	St. Pacôme, v.	1,283	1,242

**9.—Incorporated Cities, Towns and Villages having Populations of 1,000 or Over in 1961,
by Province, Census Years 1956 and 1961—continued**

Province and Incorporated Centre	1956	1961	Province and Incorporated Centre	1956	1961
	No.	No.		No.	No.
Quebec—concluded			Ontario—continued		
St. Pascal, v.....	1,962	2,144	Almonte, t.....	2,960	3,267
St. Pie, v.....	1,228	1,434	Amherstburg, t.....	4,099	4,452
St. Pierre, t.....	5,276*	6,795*	Arnprior, t.....	5,137*	5,474
St. Raphaël, v.....	1,059	1,134	Arthur, v.....	1,124	1,200
St. Raymond, t.....	3,502	3,931	Athens, v.....	935	1,015
St. Rédempteur, v.....	872	1,035*	Aurora, t.....	3,957	8,791*
St. Rémi, t.....	2,303	2,276	Aylmer, t.....	4,201*	4,705*
Ste. Rosalie, v.....	1,142*	1,255	Ayr, v.....	939	1,016
Ste. Rose, t.....	5,378*	7,571*	Bancroft, v.....	1,669*	2,615*
St. Sauveur des Monts, v.....	1,316*	1,702*	Barrie, c.....	16,851*	21,169*
St. Siméon, v.....	1,114	1,197	Barry's Bay, v.....	1,366	1,439
Ste. Thècle, v.....	1,499	2,009*	Beamsville, v.....	2,198	2,537
Ste. Thérèse, c.....	8,266	11,771*	Beaverton, v.....	1,099	1,217
St. Timothée, v.....	688	1,003	Belle River, v.....	1,814*	1,854
St. Tite, t.....	3,183	3,250	Belleville, c.....	20,605	30,655*
St. Ulric, v.....	980	1,021	Blenheim, t.....	2,844	3,151*
St. Vincent de Paul, t.....	6,784	11,214	Blind River, t.....	3,633*	4,093*
St. Zacharie, v.....	1	1,361	Bobcaygeon, v.....	1,242	1,210
Sacré Cœur de Jésus, v.....	896	1,103	Bolton, v.....	1,093	2,104
Sayabec, v.....	2,281	2,314	Bowmanville, t.....	6,544	7,397*
Schefferville, t.....	1,632	3,173	Bracebridge, t.....	2,849	2,927
Scotstown, t.....	1,347	1,038	Bradford, t.....	2,010	2,342
Senneterre, t.....	2,197	3,246*	Brampton, t.....	12,587*	18,467*
Senneville, v.....	979	1,262	Brantford, c.....	51,869*	55,201*
Sept Îles, c.....	5,592	14,196*	Bridgeport, v.....	1,402	1,672*
Shawbridge, v.....	680	1,034	Brighton, v.....	2,182	2,403
Shawinigan, c.....	28,597*	32,169*	Brockville, t. ⁴	13,885*	17,744*
Shawinigan S. v.....	10,947*	12,683	Burlington, t.....	9,127*	47,008*
Shawville, v.....	1,281	1,534	Caledonia, t.....	2,078*	2,198
Sherbrooke, c.....	58,698*	66,554	Campbellford, t.....	3,425	3,478*
Sillery, c.....	13,154	14,109*	Cannington, v.....	926	1,024
Sorel, c.....	16,476	17,147	Capreol, t.....	2,394	3,003*
Stanstead Plain, v.....	1,134	1,116	Cardinal, v.....	1,994	1,944
Sutton, v.....	1,407	1,755*	Carleton Place, t.....	4,790*	4,796
Tadoussac, v.....	1,066	1,083	Casselman, v.....	1,241	1,277
Temiscaming, t.....	2,694	2,517	Chalk River, v.....	986	1,135
Templeton, v.....	2,475	2,965	Chatham, c.....	22,262*	29,826*
Terrebonne, t.....	4,097	6,207*	Chelmsford, t.....	2,142*	2,559*
Thetford Mines, c.....	19,511*	21,618	Chesley, t.....	1,629	1,697
Thurso, v.....	2,324	3,310	Chesterville, v.....	1,169	1,248
Tracy, t.....	6,542	8,171	Chippawa, v.....	2,039*	3,256
Tring Junction, v.....	1,083*	1,214	Clinton, t.....	2,896*	3,491*
Trois Pistoles, t.....	4,039	4,349	Cobalt, t.....	2,367*	2,209
Trois-Rivières, c.....	50,483*	53,477*	Cobourg, t.....	9,399	10,646*
Val David, v.....	1,016	1,118*	Cochrane, t.....	3,695	4,521*
Val d'Or, t.....	9,876	10,983*	Colborne, v.....	1,240	1,336
Vallée Junction, v.....	1,340*	1,405*	Collingwood, t.....	7,978	8,388
Valleyfield (Salaberry de), c.....	23,554*	27,297*	Coniston, t.....	2,478	2,692*
Val St. Michel, t.....	1,140	1,290	Copper Cliff, t.....	3,801*	3,600
Varennes, v.....	2,047	2,240*	Cornwall, c.....	18,158	43,639*
Verchères, v.....	1,412	1,768	Crystal Beach, v.....	1,850	1,886
Verdun, c.....	78,262*	78,317	Deep River, t.....	1	5,377
Victoriaville, t.....	18,031*	18,720*	Delhi, t.....	3,002*	3,427*
Ville Marie, v.....	1,409	1,710	Deseronto, t.....	1,729	1,797
Villeneuve, t.....	1,417	1,934	Dresden, t.....	2,260	2,346*
Warwick, t.....	2,248	2,487	Dryden, t.....	4,428*	5,728*
Waterloo, t.....	4,266	4,543	Dundas, t.....	9,507*	12,913*
Waterville, v.....	1,373	1,330	Dunnville, t.....	4,776*	5,181
Weedon Centre, v.....	1,287	1,426	Durham, t.....	2,007	2,180
Westmount, c.....	24,800	25,012	Eastview, t. ⁵	19,283	24,555
Windsor, t.....	5,886*	6,880	Eastville, v.....	1,593	1,549
Yamachiche, v.....	900	1,186*	Elmira, t.....	2,916*	3,337*
			Elora, v.....	1,457	1,486
			Englehart, t.....	1,705	1,786
			Erin, v.....	885	1,005
			Espanola, t.....	1	5,353
			Essex, t.....	3,348	3,428
			Exeter, t.....	2,655	3,047
			Fenelon Falls, v.....	1,137	1,359
			Fergus, t.....	3,677	3,831
Ontario—					
Acton, t.....	3,578*	4,144*			
Ajax, t.....	5,683	7,755			
Alexandria, t.....	2,487	2,597*			
Alfred, v.....	1,267	1,195			
Alliston, t.....	2,426*	2,884*			

9.—Incorporated Cities, Towns and Villages having Populations of 1,000 or Over in 1961,
by Province, Census Years 1956 and 1961—continued

Province and Incorporated Centre	1956	1961	Province and Incorporated Centre	1956	1961
	No.	No.		No.	No.
Ontario—continued			Ontario—continued		
Fonthill, v.....	1,872	2,324*	Niagara, t.....	2,740	2,712
Forest, t.....	2,035	2,188	Niagara Falls, c.....	22,563	22,351
Forest Hill, v.....	19,480	20,489	North Bay, c.....	21,020*	23,781
Fort Erie, t.....	8,632	9,027*	Norwich, v.....	1,611	1,703
Fort Frances, t.....	9,005	9,481	Norwood, v.....	1,017	1,060
Fort William, c.....	39,464	45,214	Oakville, t.....	9,983	10,366
Frankford, v.....	1,491	1,642	Orangeville, t.....	3,887	4,593
Galt, c.....	23,738*	27,830*	Orillia, t.....	13,857	15,345*
Gananoque, t.....	4,981	5,096	Oshawa, c.....	50,412	62,415
Georgetown, t.....	5,942*	10,298	Ottawa, c.....	222,129	268,206
Geraldton, t.....	3,263	3,375	Owen Sound, c.....	16,976	17,421*
Glencoe, v.....	1,044	1,156	Palmerston, t.....	1,550	1,554
Goderich, t.....	5,886*	6,411	Paris, t.....	5,504*	5,820*
Gravenhurst, t.....	3,014	3,077	Parkhill, t.....	1,043	1,169
Grimsbv, t.....	3,805*	5,148*	Parry Sound, t.....	5,378	6,004
Guelph, c.....	33,860*	39,838*	Pembroke, t.....	15,434	16,791*
Hagersville, v.....	1,964	2,075	Penetanguishene, t.....	5,420	5,340
Haileybury, t.....	2,654	2,638	Perth, t.....	5,145*	5,360
Hamilton, c.....	239,625*	273,991*	Petawawa, v.....	1	4,509
Hanover, t.....	3,943	4,401*	Peterborough, c.....	42,698*	47,185*
Harriston, t.....	1,592	1,631	Petrolia, t.....	3,426	3,708
Harrow, v.....	1,851	1,787	Pickering, v.....	1,150	1,755
Havelock, v.....	1,205	1,260	Pictou, t.....	4,998	4,862
Hawkesbury, t.....	7,929	8,661	Point Edward, v.....	2,558	2,744
Hearst, t.....	2,214	2,373	Port Arthur, c.....	38,136	45,276
Hespeler, t.....	3,876*	4,519*	Port Colborne, t.....	14,028*	14,886
Huntsville, t.....	3,051	3,189	Port Credit, t.....	6,350	7,203*
Ingersoll, t.....	6,811	6,874	Port Dover, t.....	2,790*	3,064*
Iroquois, v.....	1,078	1,136	Port Elgin, t.....	1,597	1,632
Iroquois Falls, t.....	1,478	1,681	Port Hope, t.....	7,522*	8,093
Kapuskasing, t.....	5,463*	6,870	Port McNicoll, v.....	932	1,051
Keewatin, v.....	1,949	2,197	Port Perry, v.....	2,121	2,262
Kemptville, v.*	1,730	1,959	Port Stanley, v.....	1,480	1,460*
Kenora, t.....	10,278	10,904	Powassan, t.....	935	1,064
Kincardine, t.....	2,667	2,841	Prescott, t.....	4,920*	5,366
Kingston, c.....	48,618*	53,526	Preston, t.....	9,387*	11,577*
Kingsville, t.....	2,884*	3,041	Rainy River, t.....	1,354	1,168
Kitchener, c.....	59,562*	74,485*	Renfrew, t.....	8,634	8,935
Lakefield, v.....	1,938	2,167*	Richmond, v.....	794	1,215
Leamington, t.....	7,856*	9,030*	Richmond Hill, t.....	6,677*	16,446*
Leaside, t.....	16,538*	18,579	Ridgetown, t.....	2,483*	2,608*
Levack, t.....	2,929*	3,178	Riverside, t.....	13,335	18,089
Lindsay, v.....	10,110	11,399*	Rockcliffe Park, v.....	2,097	2,084
Listowel, t.....	3,644	4,002	Rockland, t.....	2,757	3,037
Little Current, t.....	1,514	1,527	Rodney, v.....	1,026	1,041
Lively, t.....	2,840	3,211	St. Catharines, c.....	29,708*	84,472*
London, c.....	101,693*	169,569*	St. Clair Beach, v.....	834	1,460*
Long Branch, v.....	10,249*	11,039*	St. Mary's, t.....	4,185	4,482
L'Orignal, v.....	1,067	1,189	St. Thomas, c.....	19,129*	24,469*
Lucknow, v.....	962	1,031	Sarnia, c.....	43,447	50,976
Madoc, v.....	1,325	1,347	Sault Ste. Marie, c.....	37,329	43,083*
Markdale, v.....	983	1,090	Seaford, t.....	2,228	2,255
Markham, v.....	2,873*	4,284	Shelburne, v.....	1,245	1,239
Marmora, v.....	1,428*	1,381	Simcoe, t.....	8,075*	8,754*
Massey, t.....	1,068	1,324	Sioux Lookout, t.....	2,504	2,453
Mattawa, t.....	3,208	3,314	Smiths Falls, t.....	8,967*	9,603*
Meaford, t.....	3,643*	3,834*	Smooth Rock Falls, t.....	1,104	1,131
Midland, t.....	8,250	8,656	Southampton, t.....	1,640	1,818
Milton, t.....	4,294*	5,629*	South River, v.....	995	1,044
Milverton, v.....	1,070	1,111	Stayner, t.....	1,429	1,671
Mimico, t.....	13,687	18,212	Stirling, v.....	1,191	1,315
Mitchell, t.....	2,146	2,247	Stittsville, v.....	1	1,508
Morrisburg, v.....	2,131	1,820	Stoney Creek, t.....	4,506*	6,043
Mount Forest, t.....	2,438	2,623	Stouffville, v.....	2,307*	3,188
Napanee, t.....	4,273	4,500	Stratford, c.....	19,972*	20,467*
Newcastle, v.....	1,098	1,272	Strathroy, t.....	4,240	5,150
New Hamburg, v.....	1,939*	2,181	Streetsville, v.....	2,648*	5,056*
New Liskeard, t.....	4,619	4,896	Sturgeon Falls, t.....	5,874	6,288
Newmarket, t.....	7,368	8,932*	Sudbury, c.....	46,482	80,120*
New Toronto, t.....	11,560	13,284	Sutton, v.....	1,310	1,470*

**9.—Incorporated Cities, Towns and Villages having Populations of 1,000 or Over in 1961,
by Province, Census Years 1956 and 1961—concluded**

Province and Incorporated Centre	1956	1961	Province or Territory and Incorporated Centre	1956	1961
	No.	No.		No.	No.
Alberta—concluded			British Columbia—		
Calgary, c.	181,780*	249,641*	Alberni, c.	3,947	4,616
Canrose, c.	5,817	6,939*	Armstrong, c.	1,197	1,288
Cardston, t.	2,607	2,801	Burns Lake, v.	1,016	1,011*
Castor, t.	958	1,025	Campbell River, v.	3,069*	3,739
Clareholm, t.	2,431	2,143	Castlegar, v.	1,705	2,253*
Couldale, t.	2,227*	2,592	Chilliwack, c.	7,297	8,259
Cold Lake, t.	1,097	1,307	Comox, v.	1,151*	1,756
Coleman, t.	1,566	1,713	Courtenay, c.	3,025	3,485
Devon, t.	1,429*	1,418*	Cranbrook, c.	1,562*	5,549
Didsbury, t.	1,227	1,251*	Creston, v.	1,844*	2,460*
Drayton Valley, t.	2,588	3,854*	Cumberland, v.	1,039	1,303*
Drumheller, c.	2,622*	2,931	Dawson Creek, c.	7,531*	10,946*
Edmonton, c.	226,002*	281,027*	Duncan, c.	3,247	3,726*
Edson, t.	2,560	3,198	Enderby, c.	965	1,075
Fairview, t.	1,260*	1,506	Fernie, c.	2,808*	2,661
Forest Lawn, t.	3,150*	12,263*	Fort St. James, v.	615	1,081
Fort Macleod, t.	2,103	2,490	Fort St. John, t.	1,908	3,619*
Fort Saskatchewan, t.	2,582*	2,972*	Fruitvale, v.	870	1,032
Grand Centre, t.	1	1,493	Gibson's Landing, v.	990	1,091
Grande Prairie, c.	6,302*	8,352*	Golden, v.	1	1,776
Grimshaw, t.	904*	1,095*	Grand Forks, c.	1,995	2,347
Hanna, t.	2,327	2,645	Hope, v.	2,226	2,751
High Prairie, t.	1,743*	1,756*	Kamloops, c.	9,096*	10,076*
High River, t.	2,102	2,276	Kelowna, c.	9,181	13,188*
Hinton, t.	1	3,529	Kimberley, c.	5,774	6,013*
Innisfail, t.	1,883*	2,270*	Kinnaird, v.	1,305	2,123*
Jasper Place, t.	15,957	30,530	Ladysmith, v.	2,107	2,173
Lac La Biche, t.	967	1,314*	Lake Cowichan, v.	1,949	2,149*
Lacombe, t.	2,747	3,029*	Langley, c.	2,131	2,365
Leduc, t.	2,008*	2,356*	Lillooet, v.	1,083*	1,204*
Lethbridge, c.	29,462*	35,454*	Marysville, v.	930	1,057
Lloydminster, c.	8	8	Merritt, v.	1,790	3,039
Magrath, t.	1,382	1,338	Mission City, t.	3,010	3,251*
McLennan, t.	1,092*	1,078*	Nanaimo, c.	12,705*	14,135
McMurray, t.	1,110	1,186	Nelson, c.	7,226	7,074
Medicine Hat, c.	20,826*	24,484*	New Westminster, c.	31,665	33,654
Montgomery, t.	1	5,077	North Kamloops, v.	4,398*	6,456*
Nanton, t.	1,047	1,054	North Vancouver, c.	19,951	23,656
Okotoks, t.	764	1,043*	Oliver, v.	1,147	1,774*
Olds, t.	1,980	2,433	Osoyoos, v.	860	1,022
Peace River, t.	2,034*	2,543*	Parksville, v.	1,112*	1,183
Pincher Creek, t.	1,729	2,961*	Penticton, c.	11,894	13,859
Ponoka, t.	3,387	3,938	Port Alberni, c.	10,373	11,560
Provost, t.	878	1,022*	Port Coquitlam, c.	4,632	8,111
Raymond, t.	2,399	2,362*	Port Moody, c.	2,713	4,789
Redcliff, t.	2,001	2,221	Prince George, c.	10,562*	13,877*
Red Deer, c.	12,338*	19,612*	Prince Rupert, c.	10,498	11,987
Redwater, t.	1,065*	1,135	Princeton, v.	2,245	2,163
Rimbey, t.	980*	1,266	Quesnel, t.	1,381*	4,673*
Rocky Mountain House, t.	1,285	2,360*	Revelstoke, c.	3,469	3,624
St. Albert, t.	1,320	4,059	Rossland, c.	4,344	4,354
St. Paul, t.	2,229*	2,823	Salmon Arm, v.	1,344	1,506*
Stettler, t.	3,359	3,638*	Sidney, v.	1,371	1,558*
Stony Plain, t.	1,098	1,311	Smithers, v.	1,062	2,487
Sylvan Lake, t.	1,114	1,381	Squamish, v.	1,292*	1,557*
Taber, t.	3,688	3,951	Trail, c.	11,395	11,580
Three Hills, t.	1,095*	1,491	Vancouver, c.	365,812*	384,522*
Valleyview, t.	973	1,077	Vanderhoof, v.	1,085*	1,460
Vegreville, t.	2,574	2,908	Vernon, c.	8,998	10,250*
Vermilion, t.	2,196	2,449	Victoria, c.	54,584	54,941
Viking, t.	897*	1,043*	Warfield, v.	2,051	2,212
Vulcan, t.	1,204	1,310*	White Rock, c.	1	6,453
Wainwright, t.	2,653	3,351	Williams Lake, v.	1,790*	2,120*
Westlock, t.	1,136*	1,838*			
Wetaskiwin, c.	4,476*	5,300*			
Whitecourt, v.	1	1,054			
			Yukon Territory—		
			Whitehorse, c.	2,570	5,031

¹ Incorporated after June 1, 1956.

² Includes residents of the Nova Scotia Sanatorium located outside the town limits, numbering 435.

³ Amalgamation of the towns of L'Abord & Plouffe, St. Martin and the rural municipality of St. Martin (Renaud).

⁴ Brockville became a city on Apr. 1, 1962.

⁵ Eastview became a city on Jan. 1, 1963.

⁶ Kemptville became a town on Jan. 1, 1963.

⁷ See Manitoba.

⁸ See Saskatchewan.

Subsection 5.—Sex and Age Distribution

The sex and age distributions of a population are basic to most, if not all, other analyses, as they influence employment, marriage, birth and death rates and a multitude of other factors that are of great importance in the national life.

Sex.—The Canadian population has always been characterized by an excess of males, although this excess has been greatly modified in recent years. Since Confederation, the peak sex ratio for Canada as a whole was 113 reached in 1911, a census year that fell within a period of heavy immigration; the 1961 ratio was 102. In the older settled provinces east of Manitoba, the ratio varied between 104 in 1911 and 101 in 1961 but in the western provinces which were being opened to settlement in the early years of the century the ratio changed from a high of 146 in 1911 to 105 in 1961.

The sex distributions and variations in ratio among the provinces are given for the census years 1951, 1956 and 1961 in Table 10.

10.—Sex Distribution of the Population and Sex Ratio, by Province, Census Years 1951, 1956 and 1961

Province or Territory	1951			1956			1961		
	Males	Females	Males to 100 Females	Males	Females	Males to 100 Females	Males	Females	Males to 100 Females
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland..	185,143	176,273	105	213,905	201,169	106	234,924	222,929	105
Prince Edward Island.....	50,218	48,211	104	50,510	48,775	104	53,357	51,272	104
Nova Scotia...	324,955	317,629	102	353,182	341,535	103	374,244	362,763	103
New Brunswick	259,211	256,486	101	279,590	275,026	102	302,440	295,496	102
Quebec.....	2,022,127	2,033,554	99	2,317,677	2,310,701	100	2,631,856	2,627,355	100
Ontario.....	2,314,170	2,283,372	101	2,721,519	2,683,414	101	3,134,528	3,101,564	101
Manitoba.....	394,818	381,723	103	432,478	417,562	104	468,503	453,183	103
Saskatchewan..	434,568	397,160	109	458,428	422,237	109	479,564	445,617	108
Alberta.....	492,192	447,309	110	585,921	537,195	109	689,383	642,561	107
British Columbia...	596,961	568,249	105	720,516	677,948	106	829,094	799,988	104
Yukon Territory.....	5,457	3,639	150	6,924	5,266	131	8,178	6,450	127
Northwest Territories...	9,053	6,951	130	11,229	8,084	139	12,822	10,176	126
Canada....	7,088,873	6,920,556	102	8,151,879	7,928,912	103	9,218,893	9,019,354	102

Age.—Recent trends in vital rates and immigration have had a considerable effect on the age composition of the Canadian people. A high birth rate together with a low death rate among children added nearly 2,000,000 to the number of persons under 15 years of age between 1951 and 1961, an increase of 46 p.c. The proportion of this group to the total population increased from 30.3 p.c. to 34.0 p.c. in the ten-year period. The population of working age—those of 15 to 64 years of age—increased more slowly at 22.9 p.c. in the decade and the relative proportion of this group declined from 61.9 p.c. to 58.4 p.c. Without the influence of immigration in the 1951-61 period, the proportion of this group would have been much lower since a large part of it consisted of persons born in the low birth rate period of the 1930's. The proportion of persons 65 years of age or over in 1961 was 7.6 p.c. compared with 7.8 p.c. in 1951.

Table 11 shows the population of Canada classified by five-year age groups and by sex for the census years 1951, 1956 and 1961. The provincial distribution by specified age group is given for 1961 in Table 12.

11.—Male and Female Populations, by Age Group, Census Years 1951, 1956 and 1961

Age Group	1951		1956		1961	
	Male	Female	Male	Female	Male	Female
	No.	No.	No.	No.	No.	No.
0 - 4 years.....	879,063	843,046	1,011,835	971,728	1,154,091	1,102,310
5 - 9 ".....	713,873	683,952	919,952	887,101	1,063,840	1,015,682
10 - 14 ".....	575,122	555,661	732,032	702,562	948,160	907,839
15 - 19 ".....	532,180	525,792	586,635	575,666	729,035	703,524
20 - 24 ".....	537,535	551,106	567,179	561,931	587,139	596,507
25 - 29 ".....	552,812	578,403	605,836	592,301	613,897	595,400
30 - 34 ".....	512,557	530,177	602,535	613,750	644,407	627,403
35 - 39 ".....	503,571	496,562	555,763	558,622	631,072	639,852
40 - 44 ".....	445,800	422,767	522,615	502,784	559,996	558,965
45 - 49 ".....	387,708	356,971	455,827	422,988	515,516	499,800
50 - 54 ".....	340,461	322,195	381,835	351,215	442,909	420,279
55 - 59 ".....	292,564	278,126	321,973	307,271	362,145	343,690
60 - 64 ".....	264,324	241,828	265,652	259,265	292,569	291,066
65 - 69 ".....	228,076	205,421	237,551	226,562	239,685	247,417
70 - 74 ".....	160,398	154,674	187,490	183,218	196,076	206,099
75 - 79 ".....	94,130	94,261	113,550	113,948	134,186	140,051
80 - 84 ".....	45,963	50,828	55,636	61,460	69,046	77,771
85 - 89 ".....	17,539	22,060	21,688	26,670	27,178	33,606
90 years or over.....	5,197	7,726	6,295	9,870	7,946	12,093
Totals.....	7,088,873	6,920,556	8,151,879	7,928,912	9,215,893	9,019,354

12.—Age Distribution of the Population, by Province, Census 1961

Province or Territory	0-4 Years	5-9 Years	10-14 Years	15-19 Years	20-24 Years	25-34 Years
	No.	No.	No.	No.	No.	No.
Newfoundland.....	67,695	64,404	59,464	43,829	30,238	52,290
Prince Edward Island.....	13,221	12,216	12,264	8,875	6,344	11,049
Nova Scotia.....	91,239	84,760	80,329	64,239	49,311	87,316
New Brunswick.....	78,560	75,882	72,745	53,514	37,419	67,477
Quebec.....	671,256	624,074	568,065	487,426	369,623	735,825
Ontario.....	740,193	674,519	593,037	436,883	386,966	832,476
Manitoba.....	107,574	101,882	91,150	70,808	59,007	117,317
Saskatchewan.....	113,755	106,886	94,273	72,864	56,996	113,556
Alberta.....	179,888	159,053	130,383	99,004	89,154	192,571
British Columbia.....	186,793	171,661	150,689	112,653	95,230	214,269
Yukon Territory.....	2,337	1,761	1,187	765	1,109	2,956
Northwest Territories.....	3,890	2,924	2,413	1,699	2,239	4,005
Canada.....	2,256,401	2,079,522	1,855,999	1,432,559	1,183,646	2,481,107
	35-44 Years	45-54 Years	55-64 Years	65-69 Years	70+ Years	Total
	No.	No.	No.	No.	No.	No.
Newfoundland.....	48,964	39,343	24,731	9,684	17,211	457,853
Prince Edward Island.....	11,407	10,501	7,822	3,582	7,348	104,629
Nova Scotia.....	89,618	75,881	50,897	21,341	42,076	737,007
New Brunswick.....	69,809	56,676	38,937	16,216	30,701	597,936
Quebec.....	665,734	511,334	339,563	116,923	189,378	5,259,211
Ontario.....	866,563	670,544	476,838	180,063	328,010	6,236,092
Manitoba.....	120,774	100,500	69,886	28,169	55,119	921,686
Saskatchewan.....	115,833	97,430	68,018	28,208	57,362	925,181
Alberta.....	172,623	128,647	87,643	31,724	61,354	1,331,944
British Columbia.....	223,813	184,823	123,535	50,752	114,864	1,629,082
Yukon Territory.....	2,118	1,243	677	180	295	14,628
Northwest Territories.....	2,629	1,682	923	260	334	22,995
Canada.....	2,389,885	1,878,504	1,289,470	487,102	904,052	18,238,247

Subsection 6.—Marital Status

After age and sex, marital status analysis is probably next in importance from a vital, economic and social viewpoint. The number of married females between 15 and 45 years of age is a most significant factor in the fertility of a population. If the proportion of females in this group is low, the expected birth rate will be low. In 1961, 62.9 p.c. of all married females were in the 15-44 age group compared with 64.0 p.c. in 1951, 61.2 p.c. in 1941 and 63.5 p.c. in 1931.

The high birth rate in the 1951-61 period, besides having a notable effect on the general population growth and age composition, has been an influence on the 32.7-p.c. increase in the single population. During the same period, the married population increased by 28.2 p.c. and the widowed by 21.0 p.c. Other striking features are the excess of married males (largely consisting of male immigrants whose wives had not yet joined them) and the great preponderance of widows over widowers.

The marital status of the population in 1961 is shown in Table 13.

13.—Marital Status of the Population, by Age Group and Sex, Census 1961

Age Group and Sex		Single	Married	Widowed	Divorced	Total
		No.	No.	No.	No.	No.
Under 15 years.....	M.	3,166,091	—	—	—	3,166,091
	F.	3,025,831	—	—	—	3,025,831
	T.	6,191,922	—	—	—	6,191,922
15 - 19 “	M.	719,727	9,198	88	22	729,035
	F.	642,007	61,197	262	58	703,524
	T.	1,361,734	70,395	350	80	1,432,559
20 - 24 “	M.	408,005	178,618	233	282	587,139
	F.	241,435	353,215	931	926	596,507
	T.	649,440	531,833	1,164	1,209	1,183,646
25 - 34 “	M.	293,298	959,702	1,864	3,440	1,258,304
	F.	158,119	1,051,198	7,407	6,079	1,222,803
	T.	451,417	2,010,900	9,271	9,519	2,481,107
35 - 44 “	M.	143,174	1,034,645	7,527	5,722	1,191,068
	F.	108,573	1,052,760	28,258	9,226	1,198,817
	T.	251,747	2,087,405	35,785	14,948	2,389,885
45 - 54 “	M.	100,426	834,787	17,128	6,084	958,425
	F.	91,012	751,129	69,415	8,523	920,079
	T.	191,438	1,585,916	86,543	14,607	1,878,504
55 - 64 “	M.	74,357	540,934	35,390	4,033	654,714
	F.	65,697	439,436	125,540	4,083	634,756
	T.	140,054	980,370	160,930	8,116	1,289,470
65 - 69 “	M.	26,251	185,739	26,516	1,179	239,685
	F.	25,019	136,933	84,579	886	247,417
	T.	51,270	322,672	111,095	2,065	487,102
70 years or over.....	M.	46,235	276,102	110,761	1,334	434,432
	F.	47,871	158,711	262,324	714	469,620
	T.	94,106	434,813	373,085	2,048	904,052
All Ages.....	M.	4,977,564	4,019,725	199,507	22,097	9,218,893
	F.	4,405,564	4,004,579	578,716	30,495	9,019,354
	T.	9,383,128	8,024,304	778,223	52,592	18,238,247

Subsection 7.—Ethnic Groups and Birthplaces

Ethnic Group.—A population made up of diverse ethnic groups gives rise to political, social and economic problems quite different in nature from those of one with a more homogeneous ethnic composition. These problems are mitigated, however, to the extent

that certain groups are more easily integrated than others. It is equally true that the different backgrounds of various ethnic groups lend variety and diversity to the national life.

The two basic groups in the Canadian population are the French and British Isles ethnic groups. The influence of the French in Canada covers a longer period and, with the exception of the 1921 Census, this group has always exceeded in number any of the components of the British Isles ethnic group.

In 1961, each person was asked the question: "To what ethnic or cultural group did you or your ancestor (on the male side) belong on coming to this Continent?". The language spoken at the time by the person, or his paternal ancestor, was used as an aid in determining the person's ethnic group. The classification is given for 1961 in Table 14 with comparative figures for 1951 and 1941. Information on ethnic group was not collected in the 1956 Census.

14.—Distribution of the Population by Ethnic Group, Census Years 1941, 1951 and 1961

Ethnic Group	1941 ¹	1951	1961	
	No.	No.	No.	p.c.
British Isles	5,715,904	6,709,685	7,996,669	43.8
English.....	2,968,402	3,630,344	4,195,175	23.0
Irish.....	1,267,702	1,439,635	1,753,351	9.6
Scottish.....	1,403,974	1,547,470	1,902,302	10.4
Other.....	75,826	92,236	145,841	0.8
Other European	5,526,964	6,872,889	9,657,195	53.0
French.....	3,483,038	4,319,167	5,540,346	30.4
Austrian.....	37,715	32,231	106,535	0.6
Belgian.....	29,711	35,148	61,382	0.3
Czech and Slovak.....	42,912	63,959	73,061	0.4
Danish.....	37,439	42,671	85,473	0.5
Finnish.....	41,682	43,745	59,436	0.3
German.....	464,682	619,995	1,049,599	5.8
Greek.....	11,692	13,966	56,475	0.3
Hungarian.....	54,598	60,460	126,220	0.7
Icelandic.....	21,050	22,307	30,623	0.2
Italian.....	112,625	152,245	450,351	2.5
Jewish.....	170,241	181,670	173,344	1.0
Lithuanian.....	7,789	16,224	27,629	0.2
Netherlands.....	212,863	264,267	429,679	2.4
Norwegian.....	100,718	119,266	148,681	0.8
Polish.....	167,485	219,845	323,517	1.8
Romanian.....	24,689	23,601	43,805	0.2
Russian.....	83,708	91,279	119,168	0.7
Swedish.....	85,396	97,780	121,757	0.7
Ukrainian.....	305,929	395,043	473,337	2.6
Yugoslavic.....	21,214	21,404	68,587	0.4
Other.....	9,787	35,616	88,190	0.5
Asiatic	74,064	72,827	121,753	0.7
Chinese.....	34,627	32,528	58,197	0.3
Japanese.....	23,149	21,663	29,157	0.2
Other.....	16,288	18,636	34,399	0.2
Other Origin	189,723	354,028	462,630	2.5
Native Indian and Eskimo.....	125,521	165,607	220,121	1.2
Negro.....	22,174	18,020	32,127	0.2
Other and not stated.....	42,028 ²	170,401	210,382	1.2

¹ Excludes Newfoundland.

² Includes 35,416 half-breeds.

Birthplace.—Table 15 gives the total population of Canada classified by country of birth for the census years 1941, 1951 and 1961, and Table 16 shows the province of birth of Canadian-born persons for the same years. For immigrants, the country of birth was recorded according to boundaries existing at the date of the census. Information on birthplaces was not collected in the 1956 Census.

15.—Country of Birth of the Population, Census Years 1941, 1951 and 1961

Country	1941 ¹	1951	1961	
	No.	No.	No.	p.c.
Canada.....	9,487,808	11,949,518	15,393,984	84.4
British Isles.....	960,125 ²	912,482	969,715	5.3
Other Commonwealth.....	43,644	20,567	47,887	0.3
Europe.....	653,705	801,618	1,468,058	8.0
Austria.....	50,713	37,598	70,192	0.4
Czechoslovakia.....	25,564	29,546	35,743	0.2
France.....	13,795	15,650	36,103	0.2
Germany.....	28,479	42,693	189,131	1.0
Greece.....	5,871	8,594	38,017	0.2
Hungary.....	31,813	32,929	72,900	0.4
Italy.....	40,432	57,789	258,071	1.4
Netherlands.....	9,923	41,457	135,033	0.7
Poland.....	155,400	164,474	171,467	0.9
Scandinavian countries ³	72,473	64,522	74,616	0.4
Union of Soviet Socialist Republics.....	124,402	188,292	186,653	1.0
Yugoslavia.....	17,416	20,912	50,826	0.3
Other European.....	77,424	97,162	149,306	0.8
Asia.....	44,443	37,145	57,761	0.3
China.....	29,095	24,166	36,724	0.2
Other Asian.....	15,348	12,979	21,037	0.1
United States.....	312,473	282,010	283,908	1.6
Other countries.....	3,512	6,089	16,934	0.1
Totals.....	11,506,654⁴	14,000,429	18,238,247	100.0

¹ Excludes Newfoundland, Norway and Sweden.² Includes the Republic of Ireland.³ Includes Denmark, Iceland,⁴ Includes persons whose birthplace was not stated.

16.—Province of Birth of Canadian-Born Persons, Census Years 1941, 1951 and 1961

Province	1941	1951	1961	Province or Territory	1941	1951	1961
	No.	No.	No.		No.	No.	No.
Nfld.....	—	397,623	497,591	Sask.....	667,832	817,404	1,030,755
P.E.I.....	108,423	117,310	130,123	Alta.....	479,098	649,594	965,425
N.S.....	568,797	660,150	783,848	B.C.....	335,554	514,651	843,596
N.B.....	463,127	549,984	655,066	Yukon and N.W.T.....	12,267	16,654	26,028
Que.....	3,155,549	3,881,487	4,816,024				
Ont.....	3,123,810	3,645,074	4,667,159				
Man.....	570,349	699,687	878,369	Canada.....	9,487,808¹	11,949,518	15,393,984

¹ Includes persons born in Canada whose province of birth was not stated.

Subsection 8.—Religious Denominations

In the 1961 Census, enumerators were instructed to record the specific religious body, denomination, sect or community reported in answer to the question: "What is your religion?". Thus it should be noted that census figures do not measure church membership or indicate the degree of affiliation with any religious body. As shown in Table 17, close to eight out of ten persons in Canada stated that they belonged to one of the three numerically largest denominations—Roman Catholic, United Church and Anglican—in 1961. The table gives comparative figures for the census years 1941 and 1951; this information was not collected in the 1956 Census.

17.—Principal Religious Denominations of the Population, Census Years 1941, 1951 and 1961

Religious Denomination	1941	1951	1961	
	No.	No.	No.	p.c.
Adventist.....	18,485	21,398	25,999	0.1
Anglican Church of Canada.....	1,754,368	2,060,720	2,409,068	13.2
Baptist.....	484,465	519,555	593,553	3.3
Greek Orthodox.....	139,845	172,271	239,766	1.3
Jehovah's Witnesses.....	7,007	24,596	68,018	0.4
Jewish.....	168,585	204,836	254,368	1.4
Lutheran.....	401,836	444,923	662,744	3.6
Mennonite ¹	111,554	125,938	152,452	0.8
Mormon.....	25,328	32,888	50,016	0.3
Pentecostal.....	57,742	95,131	143,877	0.8
Presbyterian.....	830,597	781,747	818,558	4.5
Roman Catholic.....	4,806,431	6,069,496	8,342,826	45.7
Salvation Army.....	33,609	70,275	92,054	0.5
Ukrainian (Greek) Catholic ²	185,948	191,051	189,653	1.0
United Church of Canada.....	2,208,658	2,867,271	3,664,008	20.1
Other.....	272,197	317,303	531,287	2.9
Totals.....	11,506,653³	14,009,429	18,238,247	100.0

¹ Includes "Hutterites".

² Includes "Other Greek Catholic".

³ Exclusive of Newfoundland.

Subsection 9.—Languages and Mother Tongues

The term "official language" used by the census refers only to the English and French languages.* "Mother tongue" is the language a person first learned in childhood and still understands. It should be noted that persons indicated as speaking "English only" or "French only" with respect to official language may also speak other languages and have a mother tongue other than English or French. The use of the English and French languages in Canada at the time of the 1961 Census is discussed in a special article appearing in the 1965 Year Book at pp. 180-184. Table 18 gives the numerical and percentage distribution of official language by province.

* The British North America Act, 1867 (Sect. 133) makes provision for the use of the English and French languages as follows:—

"Either the English or the French Language may be used by any Person in the Debates of the Houses of the Parliament of Canada and of the Houses of the Legislature of Quebec; and both those Languages shall be used in the respective Records and Journals of those Houses; and either of those Languages may be used by any Person or in any Pleading or Process in or issuing from any Court of Canada established under this Act, and in or from all or any of the Courts of Quebec.

The Acts of the Parliament of Canada and of the Legislature of Quebec shall be printed and published in both those Languages."

18.—Numerical and Percentage Distribution of the Population Speaking One, Both or Neither of the "Official" Languages, by Province, Census 1961

NOTE.—See text and footnote above *re* the term "official language".

Province or Territory	English Only		French Only		English and French		Neither English nor French	
	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.
Newfoundland.....	450,945	98.5	522	0.1	5,299	1.2	1,087	0.2
Prince Edward Island.....	95,296	91.1	1,219	1.2	7,938	7.6	176	0.2
Nova Scotia.....	684,805	92.9	5,938	0.8	44,987	6.1	1,277	0.2
New Brunswick.....	370,922	62.0	112,054	18.7	113,495	19.0	1,465	0.2
Quebec.....	608,635	11.6	3,254,850	61.9	1,338,878	25.5	56,848	1.1
Ontario.....	5,438,766	89.0	95,236	1.5	493,270	7.9	98,820	1.6
Manitoba.....	825,955	89.6	7,954	0.9	68,368	7.4	19,409	2.1
Saskatchewan.....	865,821	93.6	3,853	0.4	42,074	4.5	13,433	1.5
Alberta.....	1,253,824	94.1	5,534	0.4	56,920	4.3	15,666	1.2
British Columbia.....	1,552,560	95.3	2,559	0.2	57,504	3.5	16,459	1.0
Yukon Territory.....	13,679	93.5	38	0.3	825	5.6	86	0.6
Northwest Territories.....	13,554	58.9	109	0.5	1,614	7.0	7,721	33.6
Canada.....	12,284,762	67.4	3,489,866	19.1	2,231,172	12.2	232,447	1.3

Mother tongues of the population are shown in Table 19. The proportion reporting English as their mother tongue in 1961 was 58.5 p.c. (compared with 59.1 p.c. in 1951), French 28.1 p.c. (29.0 p.c. in 1951) and all other mother tongues 13.5 p.c. (11.8 p.c. in 1951).

19.—Mother Tongues of the Population, Census 1961

Mother Tongue	Number	Percentage of Total	Mother Tongue	Number	Percentage of Total
English.....	10,660,534	58.45	Danish.....	35,035	0.19
French.....	5,123,151	28.09	Swedish.....	32,632	0.18
German.....	563,713	3.09	Serbo-Croatian.....	28,866	0.16
Ukrainian.....	361,496	1.98	Japanese.....	17,856	0.10
Italian.....	339,626	1.86	Lithuanian.....	14,997	0.08
Netherlands.....	170,177	0.93	Flemish.....	14,304	0.08
Indian and Eskimo.....	166,531	0.91	Lettish.....	14,062	0.08
Polish.....	161,720	0.89	Estonian.....	13,830	0.08
Magyar.....	85,939	0.47	Syrian and Arabic.....	12,999	0.07
Yiddish.....	82,448	0.45	Romanian.....	10,165	0.05
Chinese.....	49,099	0.27	Icelandic.....	8,993	0.05
Finnish.....	44,785	0.25	Gaelic.....	7,533	0.04
Russian.....	42,903	0.24	Welsh.....	3,040	0.02
Slovak.....	42,546	0.23	Other.....	48,758	0.27
Greek.....	40,455	0.22			
Norwegian.....	40,054	0.22	Canada.....	18,238,247	100.00

Subsection 10.—Households and Families

This Subsection contains limited statistics on households and families recorded at the 1961 Census; more detailed information may be found in 1961 Census reports relating to households and families (see also p. 176).

A household, as defined in the census, consists of a person or a group of persons occupying one dwelling.* It usually consists of a family with or without lodgers, employees, etc. However, it may consist of a group of unrelated persons, of two or more families sharing a dwelling, or of one person living alone. Every person is a member of some household and the number of households equals the number of occupied dwellings.

The total number and the average size of households are given by province for the census years 1951, 1956 and 1961 in Table 20. The relatively stable average of persons per household indicates an almost equal rate of increase for the dwelling stock as for the population.

* A dwelling is defined as a structurally separate set of living quarters, with a private entrance either from outside the building or from a common hall, lobby, vestibule or stairway inside. The entrance must not be through another person's living quarters.

20. Households and Persons per Household, by Province, Census Years 1951, 1956 and 1961

Province or Territory	Households			Average Persons per Household		
	1951	1956	1961	1951	1956	1961
	No.	No.	No.	No.	No.	No.
Newfoundland.....	70,980	78,808	87,940	5.0	5.1	5.0
Prince Edward Island.....	22,454	22,682	23,942	4.3	4.2	4.2
Nova Scotia.....	149,555	162,854	175,341	4.2	4.1	4.0
New Brunswick.....	114,007	120,475	132,715	4.4	4.5	4.4
Quebec.....	858,784	1,001,264	1,191,469	4.6	4.4	4.2
Ontario.....	1,181,126	1,392,491	1,640,881	3.8	3.8	3.7
Manitoba.....	202,398	217,964	239,754	3.7	3.7	3.7
Saskatchewan.....	221,456	233,664	245,424	3.7	3.6	3.6
Alberta.....	250,747	294,047	349,816	3.6	3.7	3.7
British Columbia.....	337,777	392,403	459,534	3.3	3.4	3.4
Yukon and Northwest Territories.....	..	6,994	7,920	..	3.8	4.2
Canada.....	3,409,284¹	3,923,646	4,554,736	4.0¹	3.9	3.9

¹ Exclusive of the Yukon and Northwest Territories.

The average size of the Canadian family* made a further gain between 1956 and 1961, continuing the trend of the 1951-56 period. Every province except Quebec and Saskatchewan participated in this increase, as shown in Table 21.

21.—Families and Persons per Family, by Province, Census Years 1951, 1956 and 1961

Province or Territory	Families			Average Persons per Family		
	1951	1956	1961	1951	1956	1961
	No.	No.	No.	No.	No.	No.
Newfoundland.....	74,858	82,128	89,267	4.4	4.6	4.7
Prince Edward Island.....	21,381	21,153	21,969	4.0	4.1	4.2
Nova Scotia.....	145,127	154,243	161,894	3.9	3.9	4.0
New Brunswick.....	111,639	116,623	124,653	4.1	4.2	4.3
Quebec.....	856,041	970,414	1,103,822	4.2	4.2	4.2
Ontario.....	1,162,772	1,342,572	1,511,478	3.4	3.5	3.6
Manitoba.....	191,268	204,414	215,831	3.6	3.6	3.7
Saskatchewan.....	196,188	205,135	211,776	3.7	3.8	3.8
Alberta.....	223,226	262,922	305,671	3.7	3.7	3.8
British Columbia.....	299,845	346,003	394,023	3.3	3.4	3.6
Yukon and Northwest Territories.....	4,939	5,893	7,060	3.9	4.1	4.3
Canada.....	3,287,384	3,711,500	4,147,444	3.7	3.8	3.9

Closely related to the number of families per household, and also an indicator of living conditions, is the type of family. In 1961, 94.3 out of every 100 families in Canada were maintaining their own households as compared with 92.3 in 1956 and 90.2 in 1951, an apparent steady improvement in living conditions. The families not maintaining their own households fell into two main sub-categories—families related to the head of the household and non-related lodging families. The few who did not fit either of these sub-categories were mostly families of employees living in their employer's household.

There were 7,777,137 children in families in 1961. These are limited by definition to children never married and under 25 years of age who were living with their parents or guardians at the time of the census. In Table 22, the number of children is classified to show the number in each of four separate age groups corresponding roughly to pre-school-age children, those of elementary school age, those at the secondary school level, and those of college or working age.

* A family, as defined in the census, consists of a husband and wife (with or without children who have never married) or a parent with one or more children never married, living together in the same dwelling. Adopted children and stepchildren are counted as own children and, in fact, a family may comprise a man or woman living with a guardianship child or ward under 21 years of age.

22.—Children Living at Home classified by Age Group and by Province, Census 1961

Province or Territory	Under 6 Years	6-14 Years	15-18 Years		19-24 Years		Total Children Living at Home
			Total	At School	Total	At School	
	No.	No.	No.	No.	No.	No.	No.
Newfoundland.....	80,245	109,020	32,582	21,004	16,827	1,522	238,674
Prince Edward Island.....	15,550	21,563	6,626	4,465	3,606	600	47,345
Nova Scotia.....	107,627	144,950	45,611	32,907	23,000	4,036	321,188
New Brunswick.....	93,231	131,102	39,668	27,329	19,746	3,660	283,747
Quebec.....	789,382	1,042,937	353,764	209,975	240,275	34,464	2,426,358
Ontario.....	874,318	1,111,981	321,482	245,421	179,622	45,625	2,487,403
Manitoba.....	127,250	169,016	51,530	39,156	26,775	5,883	374,571
Saskatchewan.....	134,502	176,645	53,032	41,991	23,396	5,736	387,576
Alberta.....	212,114	250,672	70,686	57,259	32,882	8,351	566,354
British Columbia.....	220,347	281,698	83,272	68,346	42,081	11,714	627,398
Yukon and Northwest Territories.....	7,158	6,985	1,554	861	826	91	16,523
Canada.....	2,661,724	3,446,569	1,059,808	748,714	609,036	121,682	7,777,137

Additional household and family classifications are given in the 1963-64 Year Book at pp. 180-181—families classified by age of head, and families classified by marital status and sex of family head; and in the 1965 Year Book at pp. 185-186—households classified by number of persons, households classified by number of families and by number of lodgers, and families classified by type and by province.

Section 2.—Intercensal Surveys

Intercensal estimates of the population of Canada and of the provinces have many uses. They are necessary to the calculation of costs of certain economic and social legislation. Business, educational and welfare organizations utilize population estimates in planning future development. They constitute a base for vital statistics rates, per capita figures of production and trade, and other analyses. They also have been found useful for estimating labour force and other population characteristics of data collected in sample surveys.

Estimates are constructed for the total population of Canada and for each province and become available about the date to which they apply—June 1 of each year. Population estimates by province are also available on a quarter-year basis. The estimates of population begin with the preceding census counts, to which are added the births of the intervening census year or years and from which the deaths are subtracted; immigrants are added and emigrants subtracted. No complete information is available on emigration. The DBS receives yearly from the United States the number of persons who gave Canada as country of last permanent residence before entering the United States as immigrants (see Chapter on Immigration and Citizenship, Part I, Section 3) and from the Registrar-General of Britain the number of emigrants from Canada arriving by sea to take up permanent residence in that country. Such data, however, are not available from other countries but, as indicated by partial data from United Nations sources, the proportion of total emigrants to all other countries is small. Family allowances statistics showing the number of migrant families by province are used in estimating interprovincial shifts in population (see Table 3, p. 179).

The following statement shows the data used in preparing the revised population estimates for the years 1957 to 1960 and the annual estimates for 1962 to 1965. The next succeeding census serves as a basis for revision of the annual estimates of each intercensal period.

<i>Year</i>	<i>Population at June 1</i>	<i>From June 1 to May 31 of Next Year</i>			
		<i>Births¹</i>	<i>Deaths¹</i>	<i>Immigrants</i>	<i>Residual²</i>
	No.	No.	No.	No.	No.
1956 Census.....	16,081,000	461,000	132,000	255,000	55,000
1957.....	16,610,000	471,000	133,000	194,000	57,000
1958.....	17,080,000	474,000	139,000	116,000	43,000
1959.....	17,483,000	477,000	138,800	106,000	58,000
1960.....	17,870,000	479,000	141,000	89,000	59,000
1961 Census.....	18,238,000	472,000	143,000	70,000	67,000
1962.....	18,570,000	470,000	145,000	79,000	78,000
1963.....	18,896,000	462,000	146,000	102,000	79,000
1964.....	19,235,000	441,000	147,000	121,000	79,000
1965.....	19,571,000	..	..	..	..

¹ Final figures used where available and registrations substituted for the remaining period, emigration.

² Mainly

23.—Annual Estimates of Population, by Province, as at June 1, 1951-65

NOTE.—At every census the previous post-censal estimates, made at June 1 each year, are adjusted to the newly recorded population figures. Figures for 1951, 1956 and 1961 are census figures. Figures for 1867-1904 will be found in the 1936 Year Book, p. 141; for 1905-30 in the 1946 edition, p. 127; for 1931-40 in the 1952-53 edition, p. 143; and for 1941-50 in the 1961 edition, p. 165. Figures for 1867-1951 will also be found in *Census of Canada 1961*, Vol. X.

Year	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada
	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000
1951.....	361	98	643	516	4,056	4,598	776	832	939	1,165	9	16	14,009
1952.....	374	100	653	526	4,174	4,788	798	843	973	1,205	9	16	14,459
1953.....	383	101	663	533	4,269	4,941	809	861	1,012	1,248	9	16	14,845
1954.....	395	101	673	540	4,388	5,115	823	873	1,057	1,295	10	17	15,287
1955.....	406	100	683	547	4,517	5,266	839	878	1,091	1,342	11	18	15,698
1956.....	415	99	695	555	4,628	5,405	850	881	1,123	1,399	12	19	16,081
1957.....	424	99	701	562	4,769	5,636	862	880	1,164	1,482	12	19	16,610
1958.....	432	100	709	571	4,904	5,821	875	891	1,206	1,538	13	20	17,080
1959.....	441	101	719	582	5,024	5,969	891	907	1,248	1,567	13	21	17,483
1960.....	448	103	727	589	5,142	6,111	906	915	1,291	1,602	14	22	17,870
1961.....	458	105	737	598	5,259	6,236	922	925	1,332	1,629	14	23	18,238
1962.....	470	106	746	607	5,366	6,342	935	930	1,370	1,659	15	24	18,570
1963.....	481	107	756	614	5,468	6,448	950	933	1,405	1,695	15	24	18,896
1964.....	491	107	760	617	5,562	6,586	958	943	1,432	1,738	16	25	19,235
1965.....	498	108	761	623	5,657	6,731	962	951	1,451	1,789	15	25	19,571

Because of the growing interest in the expanding population of the larger metropolitan areas of Canada, estimates for these areas have been prepared as of June 1, 1964. These are shown in Table 24 with the census counts for June 1, 1961; the estimates relate to the boundaries established for the 1961 Census. As in the preparation of intercensal population estimates for provinces, the births occurring in the metropolitan areas between June 1, 1961 and June 1, 1964 were added to the population at the census date, and deaths subtracted. Immigrants over this period reporting these metropolitan areas as places of destination were added and allowances were made for losses in population by emigration. Also, the net in-movement or out-movement caused by internal migration was calculated from family allowances and other data.

The falling off in the rate of population growth for the whole of Canada between June 1, 1961 and June 1, 1964, caused by declining immigration and a slight fall in the birth rate, is also reflected in the growth rate for the metropolitan areas.

24.—Estimated Population of Major Metropolitan Areas¹ as at June 1, 1964, compared with 1961 Census

Metropolitan Area ²	Census June 1, 1961	Estimate June 1, 1964	Metropolitan Area ²	Census June 1, 1961	Estimate June 1, 1964
	No.	No.		No.	No.
Calgary.....	279,062	310,000	Quebec.....	357,568	384,000
Edmonton.....	337,568	372,000	Toronto.....	1,824,481	1,989,000
Hamilton.....	395,189	418,000	Vancouver.....	790,165	823,000
London.....	181,283	192,000	Windsor.....	193,365	200,000
Montreal.....	2,109,509	2,260,000	Winnipeg.....	475,989	487,000
Ottawa.....	429,750	468,000			

¹ With 100,000 or more population in the city proper at the 1961 Census.² Areas as of the 1961 Census.

Table 25 gives estimates of the population of Canada and the provinces by age group and sex as at June 1, 1964. The method followed in preparing these estimates was much the same as that used in calculating the population estimates, described on p. 206. These estimates are subject to revision as soon as data from the next census are available.

**25.—Estimated Population classified by Age Group and Sex, by Province,
as at June 1, 1964**

Province or Territory	0-4 Years		5-9 Years		10-14 Years		15-19 Years	
	Males	Females	Males	Females	Males	Females	Males	Females
	'000	'000	'000	'000	'000	'000	'000	'000
Newfoundland.....	37.1	35.4	33.0	32.2	31.8	31.0	27.2	26.5
Prince Edward Island.....	6.9	6.5	6.2	6.1	6.2	6.0	5.5	5.3
Nova Scotia.....	46.7	44.7	44.9	42.5	42.1	40.2	37.5	35.6
New Brunswick.....	39.7	38.0	39.0	37.0	37.8	36.7	33.0	31.7
Quebec.....	327.4	320.5	334.4	321.6	308.8	295.6	270.2	261.5
Ontario.....	390.0	373.2	364.5	347.3	332.8	316.4	273.4	260.0
Manitoba.....	56.2	53.8	52.9	50.4	49.8	47.6	42.1	40.3
Saskatchewan.....	57.7	55.6	55.8	53.1	51.2	49.3	42.2	40.8
Alberta.....	96.2	92.3	88.4	83.4	76.5	72.7	60.0	57.5
British Columbia.....	96.3	93.2	93.7	89.1	85.9	81.6	71.3	68.0
Yukon Territory.....	1.3	1.2	1.1	1.0	0.8	0.8	0.5	0.5
Northwest Territories.....	2.4	2.3	1.7	1.7	1.4	1.3	1.0	1.0
Canada.....	1,167.9	1,115.7	1,115.6	1,065.4	1,025.1	979.2	863.9	828.7
	20-24 Years		25-34 Years		35-44 Years		45-54 Years	
	Males	Females	Males	Females	Males	Females	Males	Females
	'000	'000	'000	'000	'000	'000	'000	'000
Newfoundland.....	18.5	18.5	27.6	25.4	25.7	23.3	22.6	20.0
Prince Edward Island.....	3.8	3.5	5.6	5.0	5.4	5.4	5.5	5.2
Nova Scotia.....	28.7	26.4	43.6	41.4	42.6	43.5	40.8	39.0
New Brunswick.....	22.4	21.1	32.3	31.8	33.6	34.4	30.4	29.1
Quebec.....	211.2	214.2	360.8	366.9	349.6	357.9	270.6	274.1
Ontario.....	206.0	206.7	424.1	419.4	456.1	457.4	258.9	350.8
Manitoba.....	32.4	31.2	57.8	55.1	59.6	61.3	53.2	52.5
Saskatchewan.....	30.8	29.6	53.3	49.8	57.2	55.1	51.9	49.3
Alberta.....	47.0	46.9	97.9	92.8	93.8	90.1	72.5	68.5
British Columbia.....	54.8	54.2	108.6	103.3	114.9	117.2	99.4	100.8
Yukon Territory.....	0.5	0.5	1.4	1.1	1.4	1.0	0.9	0.6
Northwest Territories.....	1.0	0.8	2.4	1.7	1.7	1.1	1.0	0.8
Canada.....	657.1	653.6	1,215.4	1,193.7	1,241.6	1,247.8	1,007.7	990.7
	55-64 Years		65-69 Years		70+ Years		All Ages	
	Males	Females	Males	Females	Males	Females	Males	Females
	'000	'000	'000	'000	'000	'000	'000	'000
Newfoundland.....	14.2	12.7	5.0	4.9	9.1	9.3	251.8	239.2
Prince Edward Island.....	4.2	3.8	1.8	1.7	3.6	3.8	54.7	52.3
Nova Scotia.....	28.0	26.4	10.3	10.8	20.8	23.5	386.0	374.0
New Brunswick.....	20.9	20.2	7.7	8.2	15.1	16.9	311.9	305.1
Quebec.....	184.0	190.9	60.2	65.7	94.3	111.6	2,781.5	2,780.5
Ontario.....	254.7	256.7	89.8	99.3	152.7	196.8	3,303.0	3,283.0
Manitoba.....	38.2	36.9	13.9	14.2	29.0	29.6	485.1	472.9
Saskatchewan.....	38.4	33.9	14.2	13.1	33.0	27.7	485.7	457.3
Alberta.....	51.9	44.5	17.8	15.7	34.9	30.7	736.9	695.1
British Columbia.....	70.6	65.0	24.7	25.9	59.1	60.3	879.3	858.7
Yukon Territory.....	0.5	0.3	0.2	0.1	0.2	0.1	8.8	7.2
Northwest Territories.....	0.7	0.4	0.2	0.1	0.2	0.1	13.7	11.3
Canada.....	706.3	691.7	245.8	259.7	452.0	510.4	9,698.4	9,536.6

Section 3.—The Native Peoples of Canada

The Indians*

More than 210,000 Canadians are registered as Indians by the Department of Citizenship and Immigration. Registered Indians include all persons descended in the male line from a paternal ancestor of Indian identity, who have chosen to remain under Indian legislation. They are grouped, for the most part, into 558 bands and occupy or have access to 2,267 reserves or settlements having a total area of 5,975,647 acres.

26.—Indian Land in Reserves and Number of Bands, by Province, as at Mar. 31, 1965

Province or Territory	Bands	Reserves ¹	Total Area
	No.	No.	acres
Prince Edward Island.....	1	4	2,741
Nova Scotia.....	11	38	25,571
New Brunswick.....	15	23	37,655
Quebec.....	41	39(13)	188,178
Ontario.....	112	169(4)	1,539,873
Manitoba.....	51	101	522,351
Saskatchewan.....	67	123	1,224,583
Alberta.....	41	96(4)	1,607,400
British Columbia.....	190	1,621	820,404
Yukon Territory.....	13	25(25)	4,784
Northwest Territories.....	16	28(28)	2,107
Totals.....	558	2,267(74)	5,975,647

¹ Figures in parentheses indicate the number of Indian settlements, which are not officially reserves, included in the totals.

Some 26 p.c. of the registered Indians reside away from reserves. This portion includes those in the Yukon and Northwest Territories, for whom reserves have not been set aside. Many Indians, both on and off reserves, have specialized in various professions, trades and agricultural pursuits and others have found employment in a wide range of occupations and fitted into the economy of the areas in which they live. Some 290 Indians are employed by the Indian Affairs Branch of the Department of Citizenship and Immigration, 109 of them as teachers. In the northern and other outlying areas, hunting, fishing and trapping remain an important means of livelihood for Indians.

Apart from special provisions in the Indian Act, Indians are subject to all laws of general application. They are liable for taxation of property held off a reserve and for any income they earn off a reserve. They may vote in federal elections on the same basis as other citizens and in provincial elections where the electoral laws of the province permit. Indians are free to enter into contractual obligations and may sue and be sued. However, their real and personal property situated on a reserve is exempt from seizure except on suit by another Indian.

A Departmental census of Indian population is taken every five years and the numbers recorded at the three latest censuses—1949, 1954 and 1959—are given in Table 27; the figures for 1960-64 are taken from band membership lists kept for administrative purposes by the Indian Affairs Branch.

* Revised in the Information Division, Department of Citizenship and Immigration, Ottawa.

**27.—Indian Population, by Province, Departmental Censuses 1949, 1954 and 1959
and Estimates 1960-64**

Province or Territory	1949	1954	1959 ¹	1960 ¹	1961 ¹	1962 ¹	1963 ¹	1964 ¹
	No.	No.	No.	No.	No.	No.	No.	No.
Prince Edward Island.....	273	272	341	343	348	363	374	376
Nova Scotia.....	2,641	3,002	3,561	3,630	3,746	3,834	3,935	3,994
New Brunswick.....	2,139	2,629	3,183	3,280	3,397	3,524	3,629	3,717
Quebec.....	15,970	17,574	20,453	21,154	21,793	22,373	23,043	23,709
Ontario.....	34,871	27,255	42,668	43,767	44,942	46,172	47,280	48,465
Manitoba.....	17,549	19,684	23,658	24,608	25,681	26,676	27,778	28,833
Saskatchewan.....	16,308	18,750	23,280	24,278	25,334	26,483	27,672	28,914
Alberta.....	13,805	15,715	19,287	20,053	20,931	21,807	22,738	23,642
British Columbia.....	27,926	31,086	36,229	37,375	38,616	39,784	40,990	42,141
Yukon Territory.....	1,443	1,568	1,868	1,923	2,006	2,096	2,142	2,215
Northwest Territories.....	3,772	4,023	4,598	4,758	4,915	5,108	5,235	5,383
Totals.....	136,407	151,558	179,126	185,169	191,709	198,220	204,796	211,389

¹ As at Dec. 31.

The Indian population in each province is classified by age group and sex in Table 28. The rapid growth of that population in recent years is indicated by the fact that in 1964 approximately 58 p.c. of the Indians were under 21 years of age compared with 42 p.c. of the population of Canada as a whole. Religious denominations of the Indian population are given in Table 29.

28.—Indian Population classified by Age Group and Sex, by Province, as at Dec. 31, 1964

Province or Territory	0-5 Years		6-15 Years		16-20 Years		21-64 Years	
	Males	Females	Males	Females	Males	Females	Males	Females
	No.	No.	No.	No.	No.	No.	No.	No.
	No.	No.	No.	No.	No.	No.	No.	No.
Prince Edward Island.....	23	40	47	43	15	15	90	83
Nova Scotia.....	341	324	522	522	220	198	872	756
New Brunswick.....	354	368	541	492	182	188	764	662
Quebec.....	2,155	2,149	2,807	2,777	1,094	1,114	5,323	4,887
Ontario.....	4,485	4,367	6,245	6,068	2,455	2,392	10,233	9,226
Manitoba.....	3,531	3,481	3,930	3,899	1,439	1,391	5,374	4,620
Saskatchewan.....	3,754	3,699	4,053	4,040	1,318	1,315	5,058	4,630
Alberta.....	2,997	2,934	3,290	3,322	1,144	1,148	4,120	3,760
British Columbia.....	4,743	4,772	5,791	5,720	2,144	2,094	8,089	7,054
Yukon Territory.....	286	253	259	284	111	110	426	367
Northwest Territories.....	546	587	649	662	261	235	1,120	974
Totals.....	23,215	22,974	28,134	27,829	10,383	10,200	41,469	37,019
	65-89 Years		70+ Years		Not Stated		All Ages	
	Males	Females	Males	Females	Males	Females	Males	Females
	No.	No.	No.	No.	No.	No.	No.	No.
	No.	No.	No.	No.	No.	No.	No.	No.
Prince Edward Island.....	3	2	2	4	3	6	183	193
Nova Scotia.....	26	21	56	47	35	54	2,072	1,922
New Brunswick.....	30	14	45	37	15	25	1,931	1,786
Quebec.....	209	208	428	375	42	141	12,058	11,651
Ontario.....	475	360	809	749	186	415	24,888	23,577
Manitoba.....	230	148	370	341	12	67	14,886	13,947
Saskatchewan.....	186	162	364	280	6	49	14,739	14,175
Alberta.....	166	112	309	229	36	75	12,062	11,580
British Columbia.....	399	248	552	471	7	57	21,725	20,416
Yukon Territory.....	14	10	40	53	—	2	1,136	1,079
Northwest Territories.....	57	53	102	100	14	23	2,749	2,634
Totals.....	1,795	1,338	3,077	2,686	356	914	108,429	102,960

29.—Religious Denominations of the Indian Population, by Province, as at Dec. 31, 1964

Province or Territory	Roman Cath- olic	An- glican	United Church	Baptist	Presby- terian	Pente- costal	Salva- tion Army	Other Christian Belief	Aborig- inal	Not Stated	All Denom- inations
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
P.E.I.....	376	—	—	—	—	—	—	—	—	—	376
N.S.....	3,951	—	6	—	—	—	—	4	—	33	3,994
N.B.....	3,693	—	1	—	—	—	—	—	—	23	3,717
Que.....	17,116	4,802	855	5	—	32	—	212	220	467	23,709
Ont.....	16,864	14,022	7,851	3,235	942	389	4	497	2,714	1,947	48,465
Man.....	11,257	8,402	7,198	—	1,249	275	—	125	86	241	28,833
Sask.....	15,541	8,584	2,512	65	92	41	—	423	1,381	275	28,914
Alta.....	16,933	3,080	2,611	178	6	12	—	543	69	210	23,642
B.C.....	24,510	8,041	7,932	—	2	385	740	241	—	290	42,141
Yukon.....	544	1,544	—	121	—	—	—	—	—	6	2,215
N.W.T.....	4,213	899	—	—	1	—	—	—	—	270	5,383
Totals.....	114,998	49,374	28,966	3,604	2,292	1,134	744	2,045	4,470	3,762	211,389

Administration.—Pursuant to the British North America Act, the administration of Indian affairs, which had been under the management of several provinces, came under the jurisdiction of the Government of Canada. Since January 1950, Indian affairs have been the responsibility of a Branch of the Department of Citizenship and Immigration.

The Indian Affairs Branch is composed of a headquarters staff at Ottawa, eight regional offices, two district offices in the Province of Ontario and 87 field agencies. Specialists in such matters as education, economic development, community development, resource management, social welfare, and engineering and construction are attached to headquarters and regional staffs. Liaison is maintained with the Indian and Northern Health Services of the Department of National Health and Welfare, the federal agency concerned with the medical care of Indians (see p. 293).

It is the primary function of the Indian Affairs Branch to administer the affairs of Indians in a manner that will enable them to participate fully in the social and economic life of the country. To this end, the Branch has brought into effect a wide range of programs in the fields of education, economic development, social welfare and community development. Underlying administrative duties of the Branch include the management of Indian reserves and surrendered lands, the administration of band funds, estates management, enfranchisement of Indians and the administration of treaty obligations.

Welfare.—Welfare services and social benefits available to Indians at present include those administered and financed by the Indian Affairs Branch and Indian bands, those developed through co-operative cost-sharing arrangements with provincial, municipal and private organizations, and programs conducted by other federal and provincial government departments.

Indians are eligible for family allowances, youth allowances and old age security administered by the Federal Government, as well as for old age assistance and blind and disabled persons' allowances administered by provincial governments. In the Province of Ontario, Indian women may receive mothers' allowances and assistance to widows and unmarried women on the same basis as non-Indian women; indigent Indian mothers in Quebec are eligible for needy mothers' allowances and upon application abandoned children and adult Indians in Nova Scotia receive certain benefits in accordance with the Nova Scotia Social Assistance Act.

As there is no specific welfare legislation respecting Indians in either the Indian Act or other federal statute, the Indian Affairs Branch must rely upon provincial welfare legislation and upon provincially accredited welfare agencies for the enforcement of such legislation. The Federal Government has negotiated cost-sharing arrangements with various provincial governments and private welfare agencies for the extension of child welfare services and for rehabilitation programs for handicapped Indians. Agreements with the governments of the Yukon Territory, the Northwest Territories, Manitoba, Ontario and Nova Scotia make provision for child welfare services to Indian reserves. In other provinces child welfare services are provided although formal agreements have not been negotiated. The Federal Government assumes responsibility for the maintenance of Indian children under the care and supervision of child welfare agencies (governmental and private); maintenance is paid for children placed in foster homes by Indian Affairs Branch field staff when the service of a child-caring agency is not available and also for children committed by the courts to training schools and correctional institutions.

Care and maintenance in homes for the aged and other institutions are available to physically and socially handicapped adults who need such help because of senility or chronic illness but do not require active medical treatment.

The implementation of a federal-provincial statement of policy on social assistance and health services ensures that Indians living off reserves in British Columbia may secure aid when and where they need help. The Province of British Columbia shares with the Federal Government the costs of two continuing projects in the Prince Rupert and Babine areas designed to study and deal with specific welfare problems of Indians.

About half the Indian population of Ontario (35 Indian bands) assume municipal responsibilities by administering their own programs under the terms of the General Welfare Assistance Act of Ontario. Provincial rehabilitation services are generally extended to handicapped Indians on the same basis as to non-Indians.

When in need, Indians who live on Indian reserves or in recognized Indian communities receive food, fuel, clothing, essential household equipment, shelter and supply and repair of prosthetic equipment from the Indian Affairs Branch. Indians who become stranded away from home in Canada may be given return transportation if they are unemployable or if employment is not available. It is expected that Indians living in non-Indian communities who need aid will be assisted by local municipal or provincial welfare agencies. Claims from such agencies for reimbursement on a charge-back basis are paid if persons so assisted have not established eligibility through residence.

Community Development.—The Indian Affairs Branch conducts a comprehensive community development program which is expected to be a major instrument for improving the economic, social and cultural life of Indians. This involves the use of trained persons to assist Indian groups to gain further skills and interest in dealing with community problems.

Resource and Industrial Development.—Increasing interest in the development of commercial enterprises on Indian reserves has been evident in recent years. In a number of areas, Indian bands have developed portions of their lands to serve as industrial parks. Indians have also shown a growing interest in co-operatives. In March 1965, there were more than 30 co-operatives in which membership was wholly or substantially Indian. Included were producers' co-operatives, mostly engaged in pulpwood cutting and fishing with a few in the handicraft field, as well as consumers' co-operatives and

credit unions. In addition, 20 or more Indian projects, mostly fisheries, were operated on a co-operative basis under Indian Affairs Branch programs, although not formally incorporated.

Placement officers of the Indian Affairs Branch, located at a number of centres across Canada and working in co-operation with the National Employment Service, promote Indian employment in a wide range of occupations. The program includes vocational and trade training. Also, the Indian Affairs Branch has arranged for community organizations to counsel Indians who are becoming established in urban centres outside reserves, and to foster the relocation of Indian families in frontier communities associated with the mining industries, providing counsel and other assistance.

Approximately \$1,210,000 was spent in 1964-65 under the Community Employment Program, which provides employment on reserves through financing projects to develop and improve public assets on the reserves. Indian bands are encouraged to become directly involved in the planning and operation of these projects and thus assume greater responsibility in developing their communities and natural resources.

In the field of renewable natural resources development, some provinces co-operate in programs for Indians under formal agreement; others co-operate informally with the Indian Affairs Branch, with similar results. Although fur prices declined somewhat in 1964, a trend toward a return to trapping in isolated areas continued. Participation by Indians in inland fisheries has expanded steadily in recent years and it is estimated that the total Indian commercial production from all inland waters was about 20,000,000 lb. during the 1964-65 season, with an equal amount for domestic consumption. Forestry operations on the reserves and in areas adjacent to the reserves provide considerable employment for Indians, who produce about 90 p.c. of the annual reserve cut. The sale of forest products from reserves during 1964-65 totalled approximately \$10,000,000 and band funds were enriched by about \$1,000,000 from timber dues. Indians are given assistance in the operation of lumber mills, fence-post peeler and treatment plants, and charcoal kilns; reforestation projects and forest fire-fighting provide further income. The annual revenue to band funds from the exploitation of mineral resources on reserve lands averages about \$2,000,000 a year, most of it from oil and gas resources in Alberta.

In 1964-65, Indians made about \$1,000,000 worth of handicraft items for sale and their own use. Interest in their traditional crafts has been revived and expanding markets have helped to bring about an annual growth of some 17 p.c. in the industry. To encourage this important source of revenue, the Indian Affairs Branch maintains a marketing service and provides basic materials and other types of assistance on a repayable basis.

Indian farmers are eligible for assistance under the Prairie Farm Rehabilitation Act, the Prairie Farm Assistance Act, and other federal statutes of general application. In addition, the Branch provides financial assistance to encourage young Indians to engage in farming and to help those already so engaged. The Branch is prepared to help Indians to finance co-operatives and small businesses when competent management is provided and the Indians concerned are familiar with the business principles and practices involved and have a financial stake in the enterprise.

Education.—This major key to continued Indian progress receives ever-increasing support from Indian parents, from their school committees, from provincial governments, and from professional groups specifically concerned with classroom instruction of Indian pupils. The Indian Affairs Branch maintains and operates a number of schools for Indians, but 22,764 of the 55,475 Indian school population attend provincial schools. Attendance of Indians at provincial schools has been arranged, for the most part, through

agreements between the Branch and individual school boards. In 1964, however, an agreement was concluded with the Province of Manitoba to provide for a uniform tuition fee to be paid by the Branch for Indian pupils attending schools under the jurisdiction of that province. Manitoba also passed legislation to give Indian children the right to attend any provincial school.

There are three types of Indian schools, all operated at the expense of the Federal Government. On many reserves, day schools provide education for children who live at home. Residential schools care for orphaned children, children from broken homes, and for those who, because of isolation or for other reasons, are unable to attend day schools. The third type of school gives instruction to children confined to hospital.

All standard classroom supplies and authorized textbooks are used in Indian schools, which follow generally the curriculum of the province in which they are located. Financial assistance for pupils attending non-Indian schools varies from payment of tuition fees to full maintenance. Promising senior students are awarded scholarships to attend university or vocational school and scholarships are given to those who show promise in the arts.

30.—Enrolment of Indian Pupils in All Schools classified by Type of School and by Grade, School Year 1963-64

Classification	Grade				Special	Post High School	Not Graded	Total
	Pre-1	1-6	7-8	9-13				
	No.	No.	No.	No.	No.	No.	No.	No.
Indian schools	3,575	24,791	3,689	750	126	—	380 ¹	32,711
Provincial and private schools	322	10,662	3,072	3,315	264	554	4,575	22,764 ²
All Schools	3,897	35,453	6,161	4,065	390	554	4,955	55,475

¹ Includes 142 seasonal and 238 hospital pupils attending Indian schools.

² Does not include 1,206 pupils of other ethnic groups

31.—Enrolment of Indian Pupils in Provincial, Private and Territorial Schools classified by Grade or Type of Training, by Province, School Year 1963-64

Classification	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Pre-grade 1	—	22	—	50	88	30	48	—	45	—	39	322
Grade—												
1	—	17	14	134	319	287	355	255	673	39	238	2,331
2	1	15	11	140	293	180	196	218	519	17	158	1,748
3	—	20	10	138	280	226	197	168	530	10	151	1,730
4	1	25	16	159	336	215	197	185	454	11	138	1,737
5	—	22	26	114	299	138	173	198	416	57	110	1,553
6	—	33	19	178	322	145	126	203	406	33	98	1,563
7	—	31	28	215	356	131	112	243	412	38	68	1,634
8	—	17	21	218	316	108	90	216	394	31	27	1,438
9	2	43	20	166	521	93	138	119	411	13	28	1,554
10	—	23	17	83	257	77	76	77	282	16	18	926
11	—	11	5	50	130	38	59	43	191	5	9	541
12	—	3	5	16	80	10	13	30	101	1	3	262
13	—	—	—	1	19	—	—	—	12	—	—	32
University	—	7	3	20	16	1	8	7	6	—	—	68
Teacher training	—	—	1	1	7	—	3	—	—	—	2	14
Nurse's training	—	—	—	4	2	—	4	4	2	—	—	16
Nurse's aide	—	—	—	—	4	2	—	3	9	—	—	18
Vocational	—	9	6	60	37	22	30	63	89	56	66	438
Auxiliary	—	2	1	3	141	5	5	23	84	—	—	264
Not graded	25	122	49	477	1,878	374	497	218	899	35	1	4,575
Totals	29	422	252	2,227	5,701	2,082	2,327	2,273	5,935	362	1,154	22,764

The Eskimos*

Collectively and as individuals, Canada's 13,600 Eskimos living in the Northwest Territories, northern Quebec and Labrador continued to move ahead in their development from a nomadic way of life to one not too unlike the pattern of living in some areas of Southern Canada. Eskimos are becoming settled in established communities where opportunities are greater for education, health services and employment. In addition to those self-employed as members of co-operatives, Eskimos have jobs in a variety of fields. They work as civil servants and as DEW-line employees. Eskimos are clergymen, aircraft pilots, miners, carpenters, mechanics, diesel and tractor operators and oil drillers. An Eskimo is manager of the CBC radio station at Inuvik and an Eskimo girl produces Eskimo-language programs for the CBC Northern Service. Eskimo women work as interpreters, waitresses, nursing assistants, secretaries and clerks—in southern as well as northern communities.

Increased education has tended to give the Eskimo a better chance in competing for employment. The number of schools in the North continues to grow—from 11 in 1952 to 63 at the end of 1964—and almost 2,700 Eskimo youngsters attend these schools which they share with all the other children who live in the North. More than 82 p.c. of the school-age population of the Northwest Territories is now in school. A program of grants and loans to finance university education for Eskimo, Indian and white children, approved by the Northwest Territories Council early in 1963, assures higher education for those who qualify. In addition, vocational training classes are available in such fields as auto mechanics, barbering, carpentry, domestic science and hairdressing. An apprentice training program to provide more skilled workers and raise occupational standards in the North began on Apr. 1, 1964; about 30 occupations are included in the program with more to be added.

Eskimo co-operatives have developed very rapidly. There are now 19 co-operatives engaged in commercial fishing, fine crafts, graphic art and sculpture, the operation of retail stores, logging and boatbuilding, and at Frobisher Bay and Inuvik groups of Eskimo families have formed housing co-operatives. Products from the co-operatives are maintaining the Eskimos' reputation as skilled artists and craftsmen. The West Baffin Eskimo Co-operative which produces graphic art has established Cape Dorset as an art centre of distinction, and interesting prints are also produced at Povungnituk. Soapstone sculptures from Povungnituk, Grise Fiord and Igloolik are well known and Eskimo craftsmen living at Baker Lake, Coppermine, Resolute and Great Whale River are producing a wide range of original and attractive articles. The fishery co-operatives at George River in northern Quebec and at Port Burwell and Cambridge Bay in the Northwest Territories have found ready and profitable markets for their catches of Arctic char. In 1963, Ookpik, a shaggy little sealskin owl produced by Mrs. Jeannie Snowball of the Fort Chimo Co-operative, was chosen by the Department of Trade and Commerce as the symbol for Canada Week at the Philadelphia Trade Fair. He was a sensation and received much publicity. He was registered under the trade marks and patent laws to protect Mrs. Snowball and the co-operative, and licensing agreements with manufacturing concerns in Southern Canada have created a major new source of revenue for this co-operative.

A need for more permanent homes has been created by the increasing number of settled wage-earners in northern communities. Through a program of loans and grants initiated by the Northern Affairs Department, an increasing number of Eskimos own their homes. A \$1,000 subsidy covers part of the cost of each home and the owner may borrow

* Revised in the Information Services Division, Department of Northern Affairs and National Resources, Ottawa.

the remainder from the Eskimo Loan Fund and repay it on terms adjusted to his income. A man's labour in building his home helps reduce the total cost. Since the housing program started in 1959, six new designs have been developed, with many of the new features suggested by Eskimos. Housing is often provided as a relief measure to help those who, through physical or other disability, cannot afford to pay for a house.

Individual Eskimos have had interesting experiences. Mary Panegoosho, a talented young Eskimo who is employed by the Department of Northern Affairs and edits the Eskimo-language magazine, *Inuktitut (The Eskimo Way)*, visited Ghana as the guest of the Ghanaian Government. George Koneak, an interpreter with Northern Affairs and a member of the Fort Chimo Eskimo Co-operative, went to England to represent all Eskimo co-operatives at the World Co-operative Congress. Leah Illauq, from Pond Inlet, wrote a book for Eskimo children—an imaginative tale called *The Little Arctic Tern and The Big Polar Bear*. This is an example of the field of literature and literary expression being opened up through the application of the new standard orthography, which uses the Roman alphabet to write the Eskimo language.

As Canadian citizens, the Eskimos receive the same social benefits as those who live farther south—family allowances, old age security, old age assistance and blind and disabled persons' allowances. The Federal Government also operates family and child welfare services and a rehabilitation and medical social service program designed to strengthen family and community life. Tuberculosis has not been eradicated but the incidence of the disease over the past ten years is decreasing rapidly. While the Eskimo infant mortality rate remains high compared with the all-Canada rate, it also is dropping with the improvement of health facilities and housing.

Section 4. —Statistics of World Population

World population figures given in Table 32 are from the *United Nations Population and Vital Statistics Report* for April 1965 and, except as otherwise noted, are mid-year estimates for 1963. The area figures are from the *United Nations Statistical Yearbook 1963*.

Estimated Population of the World by Continents.—The following statement presents adjusted estimates of the 1963 mid-year population of the world by continental divisions. These aggregates do not coincide exactly with the sum of the figures for individual countries and territories because they include, in addition, adjustments for over- and under-enumeration, over-estimation, data for categories of population not regularly included in the official figures, and approximations for the countries that have not provided official 1963 data. The estimates are as follows:—

<i>Continental Division</i>	<i>Population</i>
	'000
Africa.....	296,000
North America.....	281,000
South America.....	157,000
Asia (includes Asiatic Turkey).....	1,802,000
Europe (includes European Turkey).....	439,000
Oceania (includes Hawaii).....	17,500
Union of Soviet Socialist Republics (Asia and Europe).....	225,000
WORLD TOTAL.....	3,218,000
Commonwealth countries (as at June 30, 1965).....	760,216

32.—Areas and Populations of the Countries or Areas of the World, 1963

NOTE.—Status of independency or dependency is as at June 30, 1965. Members of the Commonwealth and the Territories for which the British or Commonwealth members are responsible (June 30, 1965) are indicated with an asterisk (*).

Continent and Country	Area	Population
	sq. miles	'000
Africa		
INDEPENDENT STATES		
Algeria.....	919,593	11,600
Burundi.....	10,747	2,650
Cameroon.....	183,569	4,560
Central African Republic.....	238,224	1,300 ¹
Chad.....	495,754	2,500 ¹
Congo (Brazzaville).....	132,047	840 ²
Congo, Democratic Republic of (formerly Leopoldville).....	905,565	15,007 ¹
Dahomey.....	44,696	2,250 ¹
Ethiopia.....	457,267	21,800
Gabon.....	103,089	456
*Gambia.....	4,003	316
*Ghana.....	91,843	7,340
Guinea.....	94,926	3,360
Ivory Coast.....	124,503	3,665
*Kenya.....	224,960	8,847
Liberia.....	43,000	1,030
Libya.....	679,360	1,504
Madagascar.....	230,035	5,940
*Malawi (formerly Nyasaland).....	46,066	3,753
Mali.....	464,874	4,394
Mauritania.....	419,230	780 ¹
Morocco.....	171,305	12,665
Niger.....	459,190	3,117
*Nigeria.....	356,669	37,213
Rwanda.....	10,169	2,850
Senegal.....	76,124	3,360
*Sierra Leone.....	27,925	2,190
Somalia.....	246,202	2,300
South Africa, excl. Walvis Bay.....	472,359	17,057
Sudan.....	967,501	12,831
Togo.....	21,853	1,565
Tunisia.....	48,332	4,494
Uganda.....	92,525	7,190
United Arab Republic.....	386,101	27,963
*United Republic of Tanzania—		
Tanganyika.....	361,800	9,798
Zanzibar.....	1,020	325
Upper Volta.....	105,869	4,650 ¹
*Zambia (formerly Northern Rhodesia).....	288,130	3,496
TERRITORIES AND DEPENDENCIES		
Britain—		
*Basutoland.....	11,716	727
*Bechuanaland.....	222,000	540
*Mauritius, incl. dependencies.....	809	721
*Rhodesia (formerly Southern Rhodesia).....	150,333	4,010
*St. Helena, excl. dependencies.....	47	5
Ascension.....	34	³
Tristan da Cunha.....	81	³
*Seychelles.....	156	45
*Swaziland.....	6,704	278
France—		
Comoro Islands.....	838	190
French Somaliland.....	8,494	70
French Southern and Antarctic Territories.....	2,918	³
Réunion.....	969	370
Portugal—		
Angola.....	481,352	5,012
Cape Verde Islands.....	1,557	218
Mozambique.....	302,329	6,789
Portuguese Guinea.....	13,948	524
São Tomé and Príncipe.....	372	56

For footnotes, see end of table, p. 221.

32.—Areas and Populations of the Countries or Areas of the World, 1963—continued

Continent and Country	Area	Population
	sq. miles	'000
Africa—concluded		
TERRITORIES AND DEPENDENCIES—concluded		
Spain—		
Equatorial Guinea (formerly Spanish Equatorial Region).....	10,831	258
Idni.....	579	50
Spanish North Africa.....	12	158
Spanish Sahara.....	102,703	33
FORMER MANDATED TERRITORY		
(South Africa)		
South West Africa, incl. Walvis Bay.....	318,261	554
America, North		
INDEPENDENT STATES		
*Canada.....	3,851,809	18,925
Costa Rica.....	19,575	1,344
Cuba.....	44,218	7,203
Dominican Republic.....	18,816	3,334
El Salvador.....	8,260	2,721
Guatemala.....	42,042	4,095
Haiti.....	10,714	4,448
Honduras.....	43,277	2,024
*Jamaica.....	4,232	1,687
Mexico.....	761,602	38,416
Nicaragua.....	57,143	1,541
Panama, excl. Canal Zone.....	29,209	1,177
Canal Zone.....	553	50
*Trinidad and Tobago.....	1,980	922
United States of America.....	3,615,214	189,375
TERRITORIES AND DEPENDENCIES		
Britain—		
*Antigua.....	171	61
*Bahama Islands.....	4,400	129
*Barbados.....	166	239
*Bermuda.....	20	47
*British Honduras.....	8,867	100
*Cayman Islands.....	100	9
*Dominica.....	305	63
*Grenada.....	133	92
*Montserrat.....	32	13
*St. Kitts-Nevis and Anguilla.....	153	61
*St. Lucia.....	238	94
*St. Vincent.....	150	84
*Turks and Caicos Islands.....	166	6
*Virgin Islands (Br.).....	59	8
Denmark—		
Greenland.....	840,001	36
France—		
Guadeloupe.....	687	297
Martinique.....	425	303
St. Pierre and Miquelon.....	93	5
Netherlands—		
Netherlands Antilles.....	371	202
United States—		
Puerto Rico.....	3,435	2,520
Virgin Islands (U.S.).....	133	40

32.—Areas and Populations of the Countries or Areas of the World, 1963—continued

Continent and Country	Area	Population
	sq. miles	'000
America, South		
INDEPENDENT STATES		
Argentina.....	1,072,070	21,719
Bolivia.....	424,163	3,596
Brazil.....	3,286,478	76,409 ⁴
Chile.....	286,397	8,217
Colombia.....	439,513	15,088
Ecuador.....	104,506	4,726 ⁴
Paraguay.....	157,047	1,903
Peru.....	496,223	11,045
Uruguay.....	72,172	2,550
Venezuela.....	352,143	8,144 ⁴
TERRITORIES AND DEPENDENCIES		
Britain—		
*British Guiana.....	83,000	611
*Falkland Islands, excl. dependencies.....	4,618	2
France—		
French Guiana.....	35,135	35
Netherlands—		
Surinam.....	55,144	320 ⁵
Asia		
INDEPENDENT STATES		
Afghanistan.....	253,861	14,900
Bahrain.....	231	160
*Bhutan.....	18,147	700
Burma.....	261,789	23,735
Cambodia.....	69,898	5,900
*Ceylon.....	25,332	10,625
China (mainland).....	3,691,512	646,530 ⁶
China (Taiwan and Pescadores).....	13,885	11,696 ⁷
*Cyprus.....	3,572	589
*India ⁸	1,176,163	460,490
Indonesia, excl. West Irian.....	575,894	100,045
West Irian (western end of Island of New Guinea).....	159,375	750
Iran.....	636,294	22,182
Iraq.....	173,260	6,855
Israel.....	7,992	2,376
Japan.....	142,726	95,899
Jordan.....	37,301	1,827
Korea.....	85,031 ⁹	37,568
North Korea.....	46,540	10,700
Republic of Korea.....	38,004	20,868
Kuwait.....	6,000	371
Laos.....	91,429	1,925
Lebanon.....	4,015	2,200
*Malaysia—		
Malaya (formerly Federation of Malaya).....	50,700	7,607
Sabah.....	29,388	490
Sarawak.....	48,342	799
Singapore.....	224	1,775
*Maldives Islands.....	115	93
Mongolia.....	592,665	1,040
Muscat and Oman.....	82,000	565
Nepal.....	54,362	9,700
*Pakistan ⁸	365,529	98,612
Philippines.....	115,707	30,241
Qatar.....	8,500	55
Saudi Arabia.....	870,001	6,600
*Sikkim.....	2,744	167
Syria.....	71,228	5,251
Thailand.....	198,456	28,835
Trucial Oman.....	32,278	111
Turkey (Asia and Europe).....	301,381	30,000

For footnotes, see end of table, p. 221.

32.—Areas and Populations of the Countries or Areas of the World, 1963—continued

Continent and Country	Area	Population
	sq. miles	'000
Asia—concluded		
INDEPENDENT STATES—concluded		
Viet-Nam—		
North Viet-Nam.....	61,294	17,800
Republic of Viet-Nam.....	65,948	15,317
Yemen.....	75,290	5,000
TERRITORIES AND DEPENDENCIES		
Britain—		
*Aden.....	75	225
*Brunei.....	2,226	93
*Hong Kong.....	398	3,592
*Protectorate of South Arabia.....	111,000	1,000
Portugal—		
Macau.....	6	172
Portuguese Timor.....	5,763	536
FORMER MANDATED TERRITORY (Britain)		
Palestine.....	10,459	1,912 ⁶
Gaza Strip.....	78	395
MILITARY GOVERNMENT (United States)		
Bonin Islands.....	40	³
Ryukyu Islands.....	848	915
Europe		
INDEPENDENT STATES		
Albania.....	11,100	1,762
Andorra.....	175	11
Austria.....	32,374	7,172
Belgium.....	11,779	9,290
*Britain.....	94,220	53,678
England and Wales.....	58,347	47,028
Northern Ireland.....	5,462	1,446
Scotland.....	50,411	5,205
Bulgaria.....	42,729	8,078
Czechoslovakia.....	49,370	13,951
Denmark.....	16,619	4,634
Finland.....	130,120	4,543
France (Metropolitan).....	211,207	47,853
Germany—		
Eastern Germany.....	41,659	16,095
Federal Republic of Germany.....	95,928	55,430
East Berlin.....	156	1,063
West Berlin.....	186	2,177
Greece.....	50,944	8,480
Holy See.....	¹⁰ 1	1
Hungary.....	35,919	10,088
Iceland.....	39,768	185
Ireland.....	27,135	2,841
Italy.....	116,303	50,498
Liechtenstein.....	61	18
Luxembourg.....	998	326
*Malta (formerly Malta and Gozo).....	122	328
Monaco.....	¹⁰ 22	22
Netherlands.....	12,978	11,967
Norway.....	125,181	3,667
Poland.....	120,359	30,691
Portugal, incl. the Azores and Madeira Islands.....	35,510	9,037
Romania.....	91,699	18,813
San Marino.....	24	17
Spain, incl. the Balearic and Canary Islands.....	194,884	31,077
Sweden.....	173,666	7,604
Switzerland.....	15,941	5,770
Yugoslavia.....	98,766	19,065

For footnotes, see end of table.

32.—Areas and Populations of the Countries or Areas of the World, 1963—concluded

Continent and Country	Area	Population
	sq. miles	'000
Europe—concluded		
TERRITORIES AND DEPENDENCIES		
Britain—		
*Channel Islands.....	75	110
*Gibraltar.....	2	24
*Isle of Man.....	227	48
Denmark—		
Faeroe Islands.....	540	36
Norway—		
Svalbard and Jan Mayen Islands.....	24,101	1 ¹¹
Oceania		
INDEPENDENT STATES		
*Australia, excl. aborigines.....	2,971,028	10,916
*New Zealand.....	103,736	2,538
*Western Samoa.....	1,097	119
TERRITORIES AND DEPENDENCIES		
Australia—		
*Christmas Island.....	62	3
*Cocos (Keeling) Islands.....	5	1
*Norfolk Island.....	14	1
*Papua.....	90,540	543
Britain—		
*British Solomon Islands.....	11,500	130
*Fiji Islands.....	7,055	434
*Gilbert and Ellice Islands.....	349	49
*Pitcairn.....	2	1
*Tonga.....	269	69
France—		
French Polynesia.....	1,544	81
New Caledonia.....	7,202	81
New Zealand—		
*Cook Islands.....	90	19
*Niue.....	100	5
*Tokelau Islands.....	4	2
United States—		
American Samoa.....	76	23
Guam.....	212	68
TRUST TERRITORIES		
*Nauru (Aust., N.Z., and Br. Adm.).....	8	5
*New Guinea (Aust. Adm.).....	92,997	1,516
Pacific Islands (U.S. Adm.).....	687	86
CONDOMINIUMS		
*Canton and Enderbury (Anglo-American).....	27	1
*New Hebrides (Anglo-French).....	5,700	64
Union of Soviet Socialist Republics		
Union of Soviet Socialist Republics.....	8,649,512	224,764

¹ African population only. ² African population only and probably excludes population of Brazzaville and Pointe-Noire. ³ Fewer than 500 persons. ⁴ Excluding Indian jungle population. ⁵ Excluding Indian and Negro population living in tribes. ⁶ Latest official estimate. ⁷ Excluding armed forces and foreigners. ⁸ Excluding Kashmir-Jammu, the final status of which has not yet been determined. ⁹ Including 487 sq. miles demilitarized zone. ¹⁰ Less than one square mile. ¹¹ Latest official estimate; inhabited only in winter season; included also in the population of Norway.

CHAPTER IV.—IMMIGRATION AND CITIZENSHIP

CONSPECTUS

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SECTION 3. EMIGRATION STATISTICS.....	233		

The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

PART I.—IMMIGRATION AND EMIGRATION*

The history of immigration and the Immigration Act and Regulations is dealt with in detail in a special article entitled "Developments in Canadian Immigration" appearing in the 1957-58 Year Book at pp. 154-176. Supplementing that material is an article on the "Integration of Postwar Immigrants" at pp. 176-178 of the 1959 edition.

Section 1.—Immigration Policy and Administration

Policy.—Traditionally, Canada has sought to increase its population through immigration in order to expand the domestic market, reduce per capita costs of administration, stimulate economic activity by providing new skills, ideas and enthusiasm, and support a higher level of cultural independence and creativity. Canadian experience indicates that a substantial volume of immigration is highly desirable.

New population cannot be added haphazardly without regard to their means of subsistence or their effect on Canadian life. Technological change and the development of Canadian society to its present complex state require that to be able to establish themselves successfully new settlers must be economically competitive in terms of education, training, skills and personal qualities. Over the years, Canada has endeavoured to acquire immigrants who were adaptable to Canadian life. Such persons, finding familiar institutions in Canada, feel more at home and this assists in their establishment in the new life they find here. Canada makes every effort to sustain the movement of immigrants from countries having like economic, social and political backgrounds. On the other hand, qualified people from other countries can integrate successfully into Canadian society and the existing immigration Regulations recognize this principle. People anywhere in the world have an opportunity to immigrate to Canada if they demonstrate their suitability for life in this country and are likely to become established without hardship to themselves or disruption to the communities in which they settle.

The core of Canada's immigration policy is contained in the Regulations introduced with effect from Feb. 1, 1962. Those persons who are eligible to apply for permanent admission to Canada are specified. They include anyone, regardless of origin, citizenship, country of residence or religious belief, who is personally qualified by reason of education,

* Sections 1 and 2 of this Part were revised under the direction of the Deputy Minister, Department of Citizenship and Immigration, Ottawa.

training, skills or other special qualifications to become satisfactorily established in Canada. In practice, the personal qualifications and attributes of the applicant for admission are related to the needs and interests of Canadian society in any of its diversities—economic, social or cultural.

Other provisions of the Regulations enable the families of persons approved for admission under these terms to accompany them. When in Canada, a permanent resident may bring his spouse and dependent children as well as certain other close relatives to Canada. Except in some circumstances, no special criteria apply in the case of these immigrants. All immigrants must be in good health and of good character and be in possession of such documentation as the Regulations prescribe. Sponsors must be able to provide adequate care and maintenance for those for whom they apply.

In addition, Canada has on many occasions since the end of World War II sanctioned the entry of thousands of refugees. This is a humanitarian movement and is tangible evidence of Canada's recognition of its responsibilities in the international community. A conservative estimate of the number of refugees admitted since 1945 is 300,000.

Administration.—The Immigration Branch of the Department of Citizenship and Immigration administers the Immigration Act and Regulations. In December 1964 the Prime Minister announced that a White Paper on Immigration would be prepared for presentation to Parliament in 1965. The White Paper will provide a statement on the government's views on immigration policies and procedures in relation to national problems and national interests. It is expected that discussion of the White Paper, both in Parliament and by the public, will give rise to a consensus on the nature of changes required in immigration policy, procedures and legislation.

To make Immigration Branch operation more consistent with its objective, which is to attract to Canada as many skilled persons as the economy can absorb, and to equip it to meet the challenges of the years ahead, the Branch is being reorganized along functional lines to give better service to immigrants and to the Canadian public. This involves more decentralization of authority, the stepping up of promotional activities overseas and the provision of an up-to-date organization staffed by well-qualified personnel and based on the flow of immigration, beginning with policy and planning, moving on to the selection of immigrants overseas, and then to their reception and establishment in Canada. The plan also provides for the control of abuses of immigration laws and procedures and for the counselling of exceptional problem cases.

In June 1964, Mr. Joseph Sedgwick, Q.C., was asked by the Federal Government to inquire into serious allegations made in the House of Commons and elsewhere that certain aliens have been unlawfully detained and deprived of access to counsel. In addition, Mr. Sedgwick was requested to inquire into the general procedures being followed in relation to the arrest, deportation and prosecution of persons who entered or remained in Canada illegally. In January 1965, Mr. Sedgwick's terms of reference were expanded to include an examination of the extent and use of the discretionary powers which immigration legislation confers on the Minister of Citizenship and Immigration. He was also asked to advise on the basis and operation of the Immigration Appeal Board, as part of a general review of all such tribunals. When his reports are completed it is expected that they, together with the White Paper, will contribute to the reformulation of immigration policy and procedures.

Thirty visa offices are located abroad at London, Liverpool, Leeds, Bristol, Glasgow, Belfast, Dublin, Paris, Marseille, Brussels, Berne, The Hague, Copenhagen, Cologne, Berlin, Hamburg, Munich, Stuttgart, Vienna, Oslo, Stockholm, Helsinki, Lisbon, Madrid, Rome, Athens, Cairo, Tel Aviv, New Delhi and Hong Kong. Four offices in the United States—at New York, Chicago, San Francisco and Denver—furnish information and counselling but do not issue visas. Personnel at all posts are kept in close touch with economic conditions in Canada and thus are able to advise immigrants regarding prospects for

successful establishment. Examination of immigrants and visitors is carried out at 552 ports of entry on the Canadian coasts, at points along the International Boundary, at certain airports and at certain inland offices.

A primary objective of the immigration program is satisfactory settlement. The Federal Government assists immigrants in establishing themselves in the Canadian community through the work of the specialized settlement officers of the Immigration Branch, the Canadian Citizenship Branch, the Canadian Citizenship Registration Branch and other government agencies, and co-operates closely with several voluntary agencies having the same objective.

Section 2.—Immigration Statistics

Table 1 shows the number of immigrants arriving in Canada in each year since 1913, the peak year of immigration into the country. Table 2 shows the number and distribution of immigrants in the population of Canada on the latest census date, June 1, 1961, by period of arrival.

1.—Immigrant Arrivals, 1913-64

NOTE.—Figures for 1852-93 are given in the 1942 Year Book, p. 153, and for 1894-1912 in the 1948-49 edition, p. 175.

Year	Arrivals	Year	Arrivals	Year	Arrivals	Year	Arrivals	Year	Arrivals
	No.		No.		No.		No.		No.
1913.....	400,870	1924.....	124,164	1935.....	11,277	1946.....	71,719	1957.....	282,164
1914.....	150,484	1925.....	84,907	1936.....	11,643	1947.....	64,127	1958.....	124,851
1915.....	36,665	1926.....	135,982	1937.....	15,101	1948.....	125,414	1959.....	106,928
1916.....	55,914	1927.....	158,886	1938.....	17,244	1949.....	95,217	1960.....	104,111
1917.....	72,910	1928.....	166,783	1939.....	16,994	1950.....	73,912	1961.....	71,689
1918.....	41,845	1929.....	164,993	1940.....	11,324	1951.....	194,391	1962.....	74,586
1919.....	107,698	1930.....	104,806	1941.....	9,329	1952.....	164,498	1963.....	93,151
1920.....	138,824	1931.....	27,530	1942.....	7,576	1953.....	168,868	1964.....	112,606
1921.....	91,728	1932.....	20,591	1943.....	8,504	1954.....	154,227		
1922.....	64,224	1933.....	14,382	1944.....	12,801	1955.....	109,946		
1923.....	133,729	1934.....	12,476	1945.....	22,722	1956.....	164,857		

2.—Immigrant Population, by Period of Immigration and by Province, Census 1961

Province or Territory	Before 1930	1931-40	1941-45	1946-50	1951-55	1956-61 ¹	1946-61 ¹	Total
	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland.....	1,356	339	338	1,317	1,230	1,689	4,236	6,269
Prince Edward Island.....	1,170	217	117	439	452	597	1,488	2,992
Nova Scotia.....	14,752	2,165	1,079	4,434	5,281	6,457	16,172	34,168
New Brunswick.....	10,496	1,451	886	3,184	2,887	4,379	10,450	23,283
Quebec.....	121,164	14,202	5,321	38,452	87,873	121,437	247,762	388,449
Ontario.....	462,705	41,959	15,190	169,044	323,528	340,731	833,303	1,353,157
Manitoba.....	101,758	4,259	1,483	15,925	21,134	25,439	62,498	169,998
Saskatchewan.....	116,192	3,170	1,034	8,124	9,497	11,372	28,993	149,389
Alberta.....	156,324	8,446	2,420	25,326	48,263	47,970	121,559	288,749
British Columbia.....	229,790	11,300	4,498	37,296	65,947	74,301	177,544	423,132
Yukon Territory.....	867	81	42	265	626	833	1,724	2,714
Northwest Territories.....	425	114	37	178	472	737	1,387	1,963
Canada.....	1,216,999	87,703	32,445	303,984	567,190	635,942	1,507,116	2,844,263

¹ Up to the date of the Census, June 1, 1961.

The above table shows that 1,507,116 persons reported that they had come to Canada between Jan. 1, 1946 and June 1, 1961. These immigrants constituted about 75 p.c. of the total number of immigrants who arrived in Canada during that period. According to the

records of the Department of Citizenship and Immigration, 2,033,598 persons entered Canada as immigrants during the period 1946-61. The difference between this total and the 1,507,116 postwar immigrants reported in the 1961 Census, amounting to 526,482 persons, represents the losses due to death and emigration among the postwar immigrant arrivals up to June 1961. Since this difference is arrived at by comparing statistics derived from two different sources, it must be taken as only an approximate measure of these losses. It is estimated that deaths of immigrants arriving since 1946 would not exceed 86,000 by June 1961. Hence it would appear that roughly 440,000 emigrated in the period between January 1946 and June 1961, or slightly more than one fifth of the total arrivals over this period.

The 440,000 postwar immigrants who appear to have emigrated from Canada up to June 1961 would thus constitute a little over half the total estimated emigration from Canada since 1946, according to data on emigration used in the preparation of annual population estimates. In this connection it might be mentioned that a substantial element in total Canadian emigration is the movement of Canadian-born persons to the United States, some 387,000 entering the United States as immigrants between July 1946 and July 1961 according to the United States Immigration Service records (see p. 233).

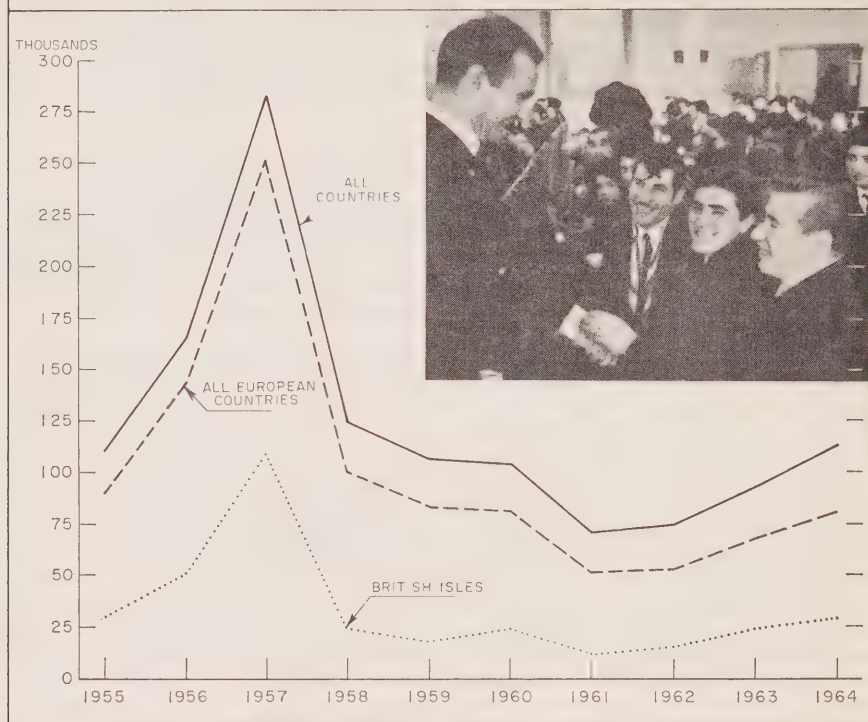
Recent Immigration.—The extent of immigration to Canada in any period is affected both by domestic conditions and by conditions abroad. However, these influences are seldom immediately decisive. News of good economic conditions in Canada predisposes people in favour of this country but, because the immigration process usually takes several months, actual immigration is not always fully coincidental with the economic situation, so that immigration may at times be slight in good years but appear unduly heavy in less buoyant periods. The time-lag caused by selection, medical examination and documentation is unavoidable. Transportation is often another delaying factor and to these considerations must be added the effect of seasonal unemployment in Canada, which tends to discourage immigration during the months from November to April.

In comparison with the relatively high levels of immigration in the three years immediately following the outbreak of the Korean War in 1951, immigration dropped off slightly from 168,868 in 1953 to 154,227 in 1954. In 1954 a minor setback occurred in the Canadian economy and this resulted in a very sharp decline of some 44,000 in the 1955 immigrant intake. However, with the return of better times in North America and the deterioration of the political situation in Europe, immigration rose by 55,000 in 1956. The Hungarian revolution and the Suez crisis of 1956 had a sharp impact on Canadian immigration in 1957 when 282,164 persons were admitted, including 31,643 from Hungary and 108,989 from the British Isles. This was the largest number of immigrants to enter Canada since 1913.

The conclusion of the Suez affair and the suppression of the Hungarian revolt restored some measure of calm in Europe. Canada's economy suffered a recession in 1956 and 1957 while Europe's economic position improved, as a result of which only 124,851 immigrants came to Canada in 1958. Britain's recovery from the war and its aftermath was reflected in the fact that, for the first time in the postwar years, the British Isles group of arrivals was not the largest—persons from Italy were in first place, numbering 27,043 compared with 24,777 from the British Isles. Total arrivals dropped from 106,928 in 1959 to 104,111 in 1960 and to 71,689 in 1961 and during these years the numbers from Italy remained in first place. The main contributing factors to the decline in number of immigrant arrivals after 1958 were: (1) the upsurge in the economies of those European countries from which Canada has received the majority of its immigrants and (2) the increasing emphasis placed on selecting the immigrant who has sufficient funds and the necessary knowledge to establish himself in a business or industry of his own, as well as on the immigrant with special skills or qualifications which would permit his ready integration into the Canadian labour force.

In 1962 the total number of immigrants increased slightly to 74,586 and immigrants from the British Isles again headed all groups. In 1963 there were encouraging signs of a

IMMIGRANT ARRIVALS IN CANADA FROM THE BRITISH ISLES, ALL EUROPEAN COUNTRIES AND ALL COUNTRIES, 1955-64



definite upsurge in interest abroad in immigration to Canada; arrivals numbered 93,151, an increase of approximately 25 p.c. over 1962. This trend continued in 1964 when arrivals numbered 112,606, a figure 21 p.c. greater than in 1963. The upsurge may be attributed to two main factors—an intensification of promotional and recruitment activities in the main source countries and an expansion of immigration examination facilities in other areas of the world which previously have contributed very few immigrants to Canada. In 1964 immigrants from the British Isles headed the list, with Italy second and the United States third. These three countries together contributed 54 p.c. of the new arrivals. However, the highest percentage increases over the 1963 figures were arrivals from Asia, which increased 60 p.c. to a total of 6,526, and from Africa, which increased 63 p.c. to 3,874. The most significant feature was that, of all immigrants destined to join Canada's labour force in 1964, 59 p.c. were in the more skilled categories.

Analyses of Immigration in 1962-64.—Analyses of the content of the immigration movement during the years 1962, 1963 and 1964 are given in Tables 3 to 10, and the numbers of persons deported from Canada for various reasons for the years 1955-64 in Table 11.

Table 3 classifies immigrant admissions by country of last permanent residence for 1962-64. During the three-year period, 25.4 p.c. of the immigration flow came from Britain and the Republic of Ireland, 46.8 p.c. from Continental Europe, 12.8 p.c. from the United States and 14.9 p.c. from all other countries.

3.—Immigrant Arrivals by Country of Last Permanent Residence, 1962-64

NOTE.—Comparable figures from 1946 are given in the corresponding table of previous Year Books beginning with the 1951 edition; figures in less detail for 1939-45 appear in the 1950 edition, p. 186.

Country	1962	1963	1964	Country	1962	1963	1964
No.	No.	No.	No.	No.	No.	No.	No.
Commonwealth—				Europe—concluded			
British Isles—				Germany.....	5,548	6,744	5,992
England.....	10,950	16,562	20,481	Greece.....	3,741	4,759	4,391
Northern Ireland.....	951	1,743	1,847	Hungary.....	450	555	424
Scotland.....	3,505	6,074	6,698	Italy.....	13,641	14,427	19,297
Wales.....	187	201	236	Netherlands.....	1,555	1,728	2,029
Lesser Isles.....	10	23	17	Poland.....	1,601	1,482	1,944
				Portugal.....	2,928	4,000	5,309
Totals, British Isles....	15,603	24,603	29,279	Scandinavian Countries—			
				Denmark.....	594	573	717
Australia.....	1,063	1,376	1,855	Other.....	412	568	604
Hong Kong.....	426	1,008	2,490	Spain.....	362	436	674
India.....	529	737	1,154	Switzerland.....	802	999	1,446
Malta.....	362	869	1,162	Yugoslavia.....	862	781	1,187
New Zealand.....	321	316	448	Other.....	251	227	275
West Indies.....	1,480	2,227	2,072	North America—¹			
Other Commonwealth.....	894	1,289	1,866	Mexico.....	134	117	136
				United States.....	11,643	11,736	12,565
Totals, Commonwealth	20,678	32,425	40,326	Other.....	132	176	174
				South America²	636	1,103	1,643
Republic of Ireland.....	452	590	680	Middle East—¹			
Africa³	645 ²	688 ³	1,598 ⁴	Egypt.....	1,322	1,476	1,855
Asia¹	642	629	760	Israel.....	558	688	871
Europe—¹				Lebanon.....	303	456	347
Austria.....	778	799	1,099	Other.....	182	225	379
Belgium.....	706	935	989	Other Countries.....	37	9	—
Finland.....	317	251	353				
France.....	2,674	3,569	4,542	Totals, All Countries....	74,586	93,151	112,606

¹ Excludes Commonwealth countries.

² Includes 340 from the Republic of South Africa.

³ Includes

296 from the Republic of South Africa.

⁴ Includes 417 from the Republic of South Africa.

Of the immigrant arrivals in 1964, 35.6 p.c. were born in Commonwealth countries or in the Republic of Ireland compared with 35.2 p.c. in 1963 and 28.9 p.c. in 1962; 22.4 p.c. were born in Italy or Greece, 8.7 p.c. in the United States, 8.7 p.c. in Germany, France or the Netherlands, 6.1 p.c. in Spain or Portugal and 4.9 p.c. in Poland or Yugoslavia.

4.—Birthplaces of Immigrant Arrivals, 1962-64

NOTE.—Figures from 1942 are given in the corresponding table of previous Year Books beginning with the 1948-49 edition.

Birthplace	1962	1963	1964	Birthplace	1962	1963	1964
No.	No.	No.	No.	No.	No.	No.	No.
Commonwealth—				Commonwealth—concluded			
British Isles—				West Indies.....	1,719	2,576	2,578
England.....	9,462	14,268	17,383	Other Commonwealth.....	1,058	1,668	3,303
Northern Ireland.....	1,031	1,851	1,993				
Scotland.....	3,787	6,340	7,145	Totals, Commonwealth	20,867	31,894	39,096
Wales.....	399	551	750				
Lesser Isles.....	35	26	48	Republic of Ireland.....	703	905	1,048
				Africa¹	1,052	1,303	1,608
Totals, British Isles....	14,714	23,036	27,319				
				Asia—¹			
Australia.....	993	1,256	1,656	China.....	594	971	2,168
Canada.....	899	906	958	Japan.....	157	184	151
India.....	762	1,146	1,642	Other.....	391	585	647
Malta.....	387	907	1,184				
New Zealand.....	335	399	456				

¹ Excludes Commonwealth countries.

4.—Birthplaces of Immigrant Arrivals, 1962-64—concluded

Birthplace	1962	1963	1964	Birthplace	1962	1963	1964
No.	No.	No.	No.	No.	No.	No.	No.
Europe—¹				Europe—concluded			
Austria.....	485	565	680	Yugoslavia.....	2,072	2,534	3,116
Belgium.....	582	603	719	Other.....	377	491	474
Czechoslovakia.....	250	234	268				
Denmark.....	615	610	723	Middle East—¹			
Finland.....	354	287	408	Egypt.....	1,325	1,583	1,946
France.....	1,929	2,452	3,143	Israel.....	218	308	439
Germany.....	4,744	4,518	4,771	Lebanon.....	227	367	299
Greece.....	3,888	5,188	4,631	Turkey.....	335	587	619
Hungary.....	817	952	973	Other.....	83	124	153
Italy.....	13,904	15,474	20,578				
Netherlands.....	1,559	1,696	1,893	North America—¹			
Norway.....	209	290	282	Mexico.....	123	105	127
Poland.....	2,028	2,004	2,371	United States.....	9,000	8,762	9,810
Portugal.....	3,048	4,255	5,700	Other.....	160	240	240
Romania.....	495	388	425				
Spain.....	508	1,053	1,147	South America¹	291	515	736
Switzerland.....	615	612	795				
Union of Soviet Socialist Republics ²	494	416	413				
				Grand Totals.....	74,586³	93,151⁴	112,606⁵

¹ Excludes Commonwealth countries.

² In both Europe and Asia.

³ Includes 87 from other countries.

⁴ Includes 96 from other countries.

⁵ Includes 4 born at sea and 5 from other countries.

Immigrants of Continental European origin comprised 57.6 p.c. of the influx during 1964 and those of British origin made up 32.1 p.c. Proportions of Continental Europeans in 1963 and 1962 were 57.4 p.c. and 62.7 p.c., respectively, and of British origin 33.4 p.c. and 29.9 p.c. in the same years.

5.—Origins of Immigrant Arrivals, 1962-64

NOTE.—Figures from 1926 are given in the corresponding table of previous Year Books beginning with the 1939 edition.

Origin	1962	1963	1964	Origin	1962	1963	1964
No.	No.	No.	No.	No.	No.	No.	No.
British—				Continental European—			
English.....	13,038	17,868	21,336	concluded			
Irish.....	3,492	4,767	5,229	Scandinavian—			
Scottish.....	5,118	7,734	8,637	Danish.....	742	743	852
Welsh.....	621	731	997	Icelandic.....	4	18	17
Totals, British.....	22,269	31,100	36,199	Norwegian.....	408	502	480
				Swedish.....	367	395	452
Continental European—				Spanish ¹	822	1,468	1,642
Albanian.....	28	51	29	Swiss ²	674	661	833
Austrian.....	506	588	751	Ukrainian.....	170	215	202
Belgian.....	546	539	723	Yugoslavic ¹	2,044	2,449	3,116
Bulgarian.....	18	23	35				
Czech and Slovak.....	161	160	237	Totals, Continental European.....	46,783	53,477	64,836
Estonian.....	54	69	57				
Finnish.....	385	325	476	Other—			
French.....	2,974	3,291	4,044	Arabian.....	67	154	214
German.....	7,000	6,550	7,091	Armenian.....	777	932	855
Greek.....	4,239	5,647	5,200	Chinese.....	876	1,571	3,210
Hungarian.....	837	995	1,054	East Indian.....	850	1,386	2,077
Italian.....	14,538	16,194	21,508	Indian (American).....	42	21	28
Jewish.....	1,840	2,180	3,113	Japanese.....	154	199	163
Latvian.....	66	92	67	Lebanese.....	444	591	635
Lithuanian.....	61	73	84	Mexican.....	24	24	27
Luxembourg.....	16	21	13	Negro.....	1,559	2,453	2,627
Maltese.....	372	906	1,200	Syrian.....	122	108	178
Netherlander.....	1,982	2,181	2,464	Turkish.....	174	310	341
Polish.....	2,143	2,069	2,621	Unspecified.....	445	825	1,216
Portuguese.....	3,443	4,732	6,109				
Romanian.....	155	163	165	Totals, Other.....	5,534	8,574	11,571
Russian.....	198	177	201				
				Grand Totals.....	74,586	93,151	112,606

¹ Includes a few minor groups.

² Reported as Swiss origin but evidently one of the constituent races

such as German, French, Italian, etc.

Out of every 100 immigrants admitted to Canada during the three-year period 1962-64, 29 were British subjects, 18 were citizens of Italy, 11 of the United States, five of Germany, five of Greece, and five of Portugal; many other nationalities made up the remaining 27.

6.—Citizenship of Immigrant Arrivals, 1962-64

NOTE.—Figures from 1930 are given in the corresponding table of previous Year Books beginning with the 1936 edition.

Country of Citizenship	1962	1963	1964	Country of Citizenship	1962	1963	1964
No.	No.	No.	No.	No.	No.	No.	No.
Australia.....	1,171	1,440	1,896	Netherlands.....	1,631	1,773	1,989
Austria.....	457	529	658	New Zealand.....	308	377	457
Belgium.....	521	528	675	Norway.....	206	285	268
Britain and colonies.....	18,475	28,981	32,773	Pakistan.....	74	137	307
Central America.....	10	27	21	Poland.....	1,639	1,539	1,985
Ceylon.....	20	25	78	Portugal.....	3,063	4,281	5,721
China.....	545	911	2,127	South Africa.....	368	339	455
Czechoslovakia.....	10	25	92	South America.....	314	594	732
Denmark.....	608	593	716	Southern Rhodesia.....	76	120	93
Egypt.....	343	1,187	1,532	Spain.....	499	1,043	1,123
Finland.....	281	281	401	Sweden.....	155	133	217
France.....	2,350	2,772	3,417	Switzerland.....	604	603	760
Germany.....	5,081	4,740	4,866	Turkey.....	177	327	395
Greece.....	4,023	5,385	4,819	Union of Soviet Socialist			
Hungary.....	437	551	460	Republics.....	81	75	80
India.....	575	860	1,309	United States.....	10,452	10,313	11,350
Ireland, Republic of.....	598	759	908	Yugoslavia.....	1,009	978	1,519
Israel.....	587	746	929	Other African.....	16	46	134
Italy.....	13,951	15,589	20,720	Other Asian.....	154	253	622
Japan.....	141	171	140	Other European.....	143	64	76
Lebanon.....	292	488	385	Stateless.....	1,922	2,394	2,661
Luxembourg.....	13	21	12	Other.....	312	431	1,624
Mexico.....	102	100	114				
Morocco.....	109	287	980	Totals.....	74,586	93,151	112,606

Sex distribution of recent immigrant arrivals is shown in Table 7. In the three years 1962-64, adult males comprised 34.6 p.c. of the immigrants, adult females 38.5 p.c. and children under 18 years of age the remaining 26.9 p.c. Without relation to age, 51.7 p.c. of the newcomers were females.

7.—Sex Distribution of Immigrants as Adult Males, Adult Females and Children, 1962-64

NOTE.—Figures from 1930 are given in the corresponding table of previous Year Books beginning with the 1946 edition.

Item	1962	1963	1964
No.	No.	No.	No.
Males.....	34,546	45,163	55,825
Under 18 years.....	9,740	12,418	16,321
Adult.....	24,806	32,745	39,504
Females.....	40,040	47,988	56,781
Under 18 years.....	9,427	12,094	15,844
Adult.....	30,613	35,894	41,437
Totals, Immigrants.....	74,586	93,151	112,606

The number of female immigrants coming into Canada has been higher than the number of male immigrants in every year since 1957. In 1964 the excess of females was 956 but in the age groups 0-14, 25-29, 30-39 and 40-49 years the number of males exceeded that of females. In the single category, males exceeded females in all age groups up to 40 years but in the married category females exceeded males by 2,851, in the widowed category by 2,657 and in the divorced or separated category by 422. Of all persons arriving in 1964 who were 15 years of age or over, 54.3 p.c. were married, 39.8 p.c. were single and 5.9 p.c. were widowed, divorced or separated.

8.—Marital Status of Immigrant Arrivals, by Sex and Age Group, 1964

Sex and Age Group	Single	Married	Widowed	Divorced	Separated	Total
	No.	No.	No.	No.	No.	No.
Males—						
0-14 years.....	13,986	—	—	—	—	13,986
15-19 ".....	4,412	51	—	—	—	4,463
20-24 ".....	7,120	1,861	1	8	6	8,996
25-29 ".....	4,836	5,055	4	51	31	9,977
30-39 ".....	2,215	8,196	25	153	54	10,643
40-49 ".....	342	3,568	28	99	29	4,066
50-59 ".....	91	1,706	87	36	12	1,932
60 years or over.....	52	1,341	329	28	12	1,762
Totals, Males.....	33,054	21,778	474	375	144	55,825
Females—						
0-14 years.....	13,161	1	—	—	—	13,162
15-19 ".....	3,654	1,193	—	—	—	4,847
20-24 ".....	5,527	5,284	4	28	16	10,829
25-29 ".....	3,130	5,562	18	94	31	8,835
30-39 ".....	1,805	7,040	96	183	70	9,194
40-49 ".....	454	2,866	255	149	40	3,744
50-59 ".....	167	1,681	876	128	75	2,927
60 years or over.....	202	1,032	1,882	71	56	3,243
Totals, Females.....	28,080	24,629	3,131	653	288	56,781

Destinations and Occupations.—Upon arrival in Canada, immigrants are asked to state their intended destinations. According to these records, Ontario absorbed by far the highest proportion of arrivals in the three-year period 1962-64—52.2 p.c. of all the males and 53.3 p.c. of all the females. Quebec was the second province of destination, receiving 25.3 p.c. of the males and 23.6 p.c. of the females, followed by British Columbia with 9.9 p.c. of the males and 10.8 p.c. of the females. The proportions intending to settle in the Prairie Provinces were 9.9 p.c. and 9.8 p.c., respectively, and in the Atlantic Provinces 2.6 p.c. and 2.5 p.c., respectively. The provincial distribution has changed little from year to year throughout the whole postwar period.

9.—Intended Province of Destination of Male and Female Immigrants Admitted to Canada, 1962-64

Province or Territory	1962			1963			1964		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland.....	196	182	378	184	165	349	224	221	445
Prince Edward Island.....	33	44	77	33	45	78	33	46	79
Nova Scotia.....	442	547	989	604	594	1,198	601	588	1,189
New Brunswick.....	491	453	944	409	360	769	320	376	696
Quebec.....	9,097	10,035	19,132	11,759	11,505	23,264	13,400	12,573	25,973
Ontario.....	16,852	20,358	37,210	23,515	25,701	49,216	30,358	31,110	61,468
Manitoba.....	1,197	1,213	2,410	1,431	1,361	2,792	1,581	1,425	3,006
Saskatchewan.....	552	611	1,163	695	743	1,438	873	922	1,795
Alberta.....	2,239	2,506	4,745	2,253	2,478	4,731	2,594	2,927	5,521
British Columbia.....	3,398	4,043	7,441	4,251	5,003	9,254	5,790	6,534	12,324
Yukon and Northwest Territories.....	49	48	97	29	33	62	51	59	110
Canada.....	34,516	40,040	74,586	45,163	47,988	93,151	55,825	56,781	112,606

In like manner, immigrant arrivals are asked to record the occupations they intend to follow in Canada. Approximately 49.9 p.c. of the persons admitted in 1964 declared that they would enter the labour force. The other 50.1 p.c. were wives, children and other dependants or were retired persons. Of the male workers, 22.1 p.c. were classed as professional and managerial, 5.7 p.c. were in agricultural occupations, 5.5 p.c. in service

occupations, 39.5 p.c. in manufacturing, mechanical and construction trades, and 14.5 p.c. were general labourers. About 24 p.c. of the female immigrants entering the labour force were intending to follow service occupations. Details are given in Table 10.

10.—Intended Occupations of Male and Female Immigrants Admitted to Canada, 1963 and 1964

Intended Occupation	1963			1964		
	Males	Females	Total	Males	Females	Total
	No.	No.	No.	No.	No.	No.
Managerial (owners, managers, officials).....	1,098	61	1,159	1,159	53	1,212
Professional.....	5,892	3,748	9,640	7,325	4,640	11,965
Accountants and auditors.....	245	13	258	294	17	311
Architects.....	75	4	79	89	5	94
Chemists (other than pharmacists).....	215	18	233	276	29	305
Dentists.....	37	5	42	53	2	55
Draftsmen and designers.....	718	37	755	898	59	957
Chemical engineers.....	87	—	87	164	—	164
Civil engineers (and other professional engineers, <i>n.e.s.</i>)....	207	—	207	263	—	263
Electrical engineers.....	309	—	309	308	—	308
Mechanical engineers.....	334	—	334	576	—	576
Mining engineers.....	41	—	41	66	—	66
Laboratory technicians and assistants, <i>n.e.s.</i>	105	137	242	84	109	193
Graduate nurses.....	27	1,852	1,879	81	1,886	1,967
Physicians and surgeons.....	583	104	687	561	107	668
Teachers and professors.....	1,067	794	1,861	1,317	1,237	2,554
Other professional workers.....	1,842	784	2,626	2,295	1,189	3,484
Clerical.....	2,012	4,174	6,186	2,522	5,409	7,931
Stenographers and typists.....	39	2,710	2,749	74	3,466	3,540
Other clerical workers.....	1,973	1,464	3,437	2,448	1,943	4,391
Transportation.....	470	3	473	547	2	549
Air pilots, captains and mates, railway conductors, loco- motive engineers, etc.....	460	2	462	542	2	544
Other transportation workers.....	10	1	11	5	—	5
Communication.....	80	99	179	102	117	219
Commercial.....	992	389	1,381	1,276	640	1,916
Commercial travellers and salesmen.....	605	6	611	182	5	187
Sales clerks.....	291	377	668	1,057	627	1,684
Other trading workers.....	96	6	102	37	8	45
Financial.....	110	5	115	80	3	83
Service.....	1,929	4,170	6,099	2,108	4,312	6,420
Barbers, hairdressers and manicurists.....	570	384	954	610	496	1,106
Nurses' aides.....	58	155	213	—	29	29
Cooks.....	445	68	513	456	99	555
Domestic servants.....	58	2,775	2,833	60	2,754	2,814
Other non-professional service workers.....	798	788	1,586	982	934	1,916
Agricultural.....	2,363	35	2,398	2,197	37	2,234
Farmers and agriculturists.....	684	9	693	856	17	873
Farm labourers.....	1,679	26	1,705	1,341	20	1,361
Fishing, Trapping and Logging.....	66	—	66	73	—	73
Fishermen.....	17	—	17	11	—	11
Trappers.....	—	—	—	1	—	1
Bushmen and lumbermen.....	49	—	49	61	—	61
Mining.....	130	—	130	114	—	114
Miners.....	95	—	95	93	—	93
Oil field workers.....	11	—	11	8	—	8
Other workers in mines and quarries.....	24	—	24	13	—	13
Manufacturing, Mechanical and Construction.....	12,875	1,540	14,415	15,150	2,326	17,476
Aircraft mechanics and repairmen.....	61	—	61	44	—	44
Automobile mechanics and repairmen.....	1,021	5	1,026	1,015	3	1,018
Bakers.....	349	8	357	407	10	417
Blacksmiths, hammermen and forgemen.....	64	—	64	94	—	94
Boilermakers and platers.....	200	2	202	179	1	180
Brick and stone masons.....	935	—	935	1,176	—	1,176
Butchers and meat cutters.....	303	2	305	417	1	418
Butter and cheese makers.....	17	2	19	19	1	20

**10.—Intended Occupations of Male and Female Immigrants Admitted to Canada,
1963 and 1964—concluded**

Intended Occupation	1963			1964		
	Males	Females	Total	Males	Females	Total
	No.	No.	No.	No.	No.	No.
Manufacturing, Mechanical and Construction—concl.						
Cabinet and furniture makers.....	423	—	423	396	—	396
Carpenters.....	1,060	—	1,060	1,336	—	1,336
Compositors and typesetters.....	104	—	104	121	—	121
Construction machinery operators.....	56	—	56	88	—	88
Dressmakers and seamstresses.....	9	742	751	16	1,177	1,193
Electricians and wiremen.....	1,086	9	1,095	1,270	20	1,290
Electroplaters.....	10	—	10	29	—	29
Furriers.....	53	2	55	43	11	54
Jewellers and watchmakers.....	147	5	152	161	12	173
Leather cutters.....	4	1	5	6	1	7
Machine operators.....	72	—	72	103	—	103
Machinists.....	308	10	318	85	1	86
Mechanics and repairmen.....	668	4	672	801	3	804
Metal fitters and assemblers.....	808	14	822	990	20	1,010
Milliners.....	3	4	7	2	6	8
Millwrights.....	33	—	33	5	—	5
Moulders.....	48	—	48	84	—	84
Painters, decorators and glaziers.....	597	4	601	762	6	768
Patternmakers.....	30	—	30	47	—	47
Photoengravers and lithographers.....	11	—	11	9	—	9
Plasterers and lathers.....	132	—	132	98	—	98
Plumbers and pipe fitters.....	324	—	324	348	—	348
Printers and pressmen and plate printers.....	82	—	82	126	—	126
Radio repairmen.....	187	1	188	223	—	223
Sawyers (wood).....	16	—	16	28	—	28
Sheet metal workers and tinsmiths.....	222	—	222	230	—	230
Shoemakers and shoe repairers.....	230	2	232	268	7	275
Spinners and weavers.....	41	17	58	71	38	109
Stationary engineers.....	29	—	29	23	—	23
Stonecutters and dressers.....	16	—	16	34	—	34
Tailors.....	455	38	493	518	52	570
Tanners.....	4	—	4	13	—	13
Toolmakers, diemakers and setters.....	311	—	311	401	—	401
Upholsterers.....	77	6	83	97	5	102
Welders and flame cutters.....	756	4	760	910	3	913
Workers in pulp, paper and paper products.....	38	4	42	75	16	91
Other workers in food products.....	52	9	61	97	7	104
Other workers in rubber products.....	31	1	32	26	—	26
Other workers in leather and leather products.....	30	2	32	9	3	12
Other workers in textiles.....	76	44	120	123	53	176
Other workers in clothing and textile goods.....	73	473	546	80	494	574
Other workers in wood products.....	134	1	135	145	4	149
Other workers in printing and publishing.....	79	29	108	59	31	90
Other metal workers.....	635	24	659	984	20	1,004
Other workers in non-metallic mineral products.....	74	4	78	143	12	155
Other manufacturing and mechanical workers.....	163	67	230	158	307	465
Other construction workers.....	128	—	128	158	1	159
Labourers (other than agricultural, fishing, logging and mining).....	3,459	100	3,559	5,559	178	5,737
Not Stated.....	52	14	66	182	79	261
Totals, Workers.....	31,523	14,338	45,866	38,394	17,796	56,190
Dependants—						
Wives.....	—	19,305	19,305	—	21,023	21,023
Children.....	11,873	11,353	23,226	15,480	14,339	29,819
Other.....	1,782	2,992	4,754	1,951	3,623	5,574
Totals, Immigrants.....	45,163	47,988	93,151	55,825	56,781	112,606

Deportations.—Deportations by cause and nationality are shown in Table 11 for the years 1955-64. Persons who have not yet acquired domicile (five years of residence in Canada) may be deported if they fall into prohibited classes at time of entry or within five years of entry, if they have engaged in commercialized vice, have been convicted under the Criminal Code or have become inmates of prisons or mental institutions, or have gained entry by fraudulent means. The causes that may lead to deportation are

narrowed after a person has acquired domicile. A person not a citizen may be deported regardless of length of residence if he is found to be a member of a subversive organization or engages in subversive activities, or if he has been convicted of an offence involving disloyalty to the Queen, or if he has, outside of Canada, engaged in activities detrimental to the security of Canada. A Canadian citizen cannot be deported.

11.—Deportations,¹ by Cause and Nationality, 1955-64

NOTE.—Figures from 1903 are given in the corresponding table of previous Year Books.

Cause and Nationality	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964
Cause	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Mental and physical.....	125	91	55	81	107	66	40	40	29	32
Public charges.....	23	21	13	7	10	15	18	8	7	6
Criminality.....	192	164	145	170	232	200	223	147	152	165
Misrepresentation ² and stealth.....	282	249	262	338	317	236	252	342	251	347
Other causes.....	81	79	34	68	85	54	59	93	108	172
Totals, Deportations..	703	604	509	664	751	571	592	630	547	722
Nationality										
British.....	227	212	155	155	204	125	127	90	64	76
United States.....	124	123	98	132	175	117	164	143	185	194
Other.....	352	269	256	377	372	329	301	397	298	452

¹ Excludes rejections and persons refused admission.

² Includes deserting seamen deported.

Section 3.—Emigration Statistics

Emigration from Canada is an important factor tending to offset to some extent present and past immigration activities. The major outward movement has always, of course, been to the United States and that movement, both of native-born Canadians and of Europeans who originally migrated to Canada, has attained considerable proportions at certain periods. No Canadian statistics on emigration are available but Table 12 gives figures taken from the annual reports of the Immigration and Naturalization Service of the United States Department of Justice. These figures show the numbers of persons entering the United States from Canada during the years ended June 30, 1955-64 with the expressed intention of establishing permanent residence in that country. They do not include persons travelling for pleasure, even for extended periods of time, holders of border-crossing cards (normally issued to persons living in border areas of Canada but working in the United States) or casual tourist crossings in these same areas.

Of the 38,074 Canadian-born persons entering the United States in the year ended June 30, 1964, 18,536 were males and 19,538 females. Slightly more than one quarter, or 10,139, of the total native-born emigrants were males in the productive age group, 20-59 years. By occupation, the largest group of the total of 38,074 native-born persons was the professional or technical group which numbered 4,376; clerical or kindred workers numbered 3,952, and 2,184 were classed as craftsmen or foremen. On the other hand, 20,702 persons, or 54.4 p.c. of the total, were classed as housewives, children and others with no reported occupation. Altogether, 42.1 p.c. of the total were children under 20 years of age.

Of the 51,114 persons entering the United States from Canada claiming Canada as country of last permanent residence—which of course includes native-born persons and those born in other countries who have resided in Canada—the Immigration and Naturalization Service, United States Department of Justice, lists 6,510 as professional, technical and kindred workers, 5,322 as clerical and kindred workers and 4,161 as craftsmen, foremen and kindred workers. Housewives, children and others with no reported occupation accounted for 25,304, or 49.5 p.c. of the total.

12.—Canadian-Born Persons Entering the United States from Canada and Elsewhere, and All Persons Entering the United States from Canada, Years Ended June 30, 1955-64

NOTE.—Includes only persons who have declared their intention of remaining permanently in the United States when applying for a visa (see text on p. 233). SOURCE: Immigration and Naturalization Service, United States Department of Justice.

Year	Entering U.S. from Canada		Canadian-Born Entering U.S. from Elsewhere	Year	Entering U.S. from Canada		Canadian-Born Entering U.S. from Elsewhere
	Canadian-Born	All Persons			Canadian-Born	All Persons	
	No.	No.	No.		No.	No.	No.
1955.....	..	32,435	..	1960.....	30,312	46,668	678
1956.....	..	42,363	..	1961.....	31,312	47,470	726
1957.....	32,354	46,354	849	1962.....	29,569	44,272	808
1958.....	29,245	45,143	810	1963.....	35,320	50,509	683
1959.....	22,325	34,599	757	1964.....	37,351	51,114	723

PART II.—CANADIAN CITIZENSHIP*

Naturalization procedures and events leading to the passing of the Canadian Citizenship Act are given in the 1951 Year Book, pp. 153-155.

Section 1.—The Canadian Citizenship Act

The Canadian Citizenship Act came into force on Jan. 1, 1947, its purpose being to give a clear definition of Canadian citizenship and provide an underlying community of status for all the people of Canada. Since Jan. 18, 1950, the administration of Canadian citizenship has been the responsibility of the Department of Citizenship and Immigration. The provisions of the Act and its several amendments are outlined in some detail in the 1955 Year Book, pp. 177-181. More briefly, they are given in the following paragraphs.

Natural-Born Canadian Citizens, Born before Jan. 1, 1947.—The Act conferred natural-born status upon two categories of persons in being on Jan. 1, 1947. These were (1) those born in Canada or on a Canadian ship or aircraft and who were not aliens on Jan. 1, 1947; and (2) those born of Canadian fathers outside of Canada who were not aliens on Jan. 1, 1947 and were either minors on that date or had already entered Canada for permanent residence.

The Act provides that a person born abroad who was a minor on Jan. 1, 1947 will automatically cease to be a Canadian citizen on his 24th birthday or on Jan. 1, 1954, whichever is the later date, unless he has his place of domicile in Canada at such date or has, before such date and after reaching the age of 21 years, filed a declaration of retention of Canadian citizenship.

Natural-Born Canadian Citizens, Born after Dec. 31, 1946.—A person born outside of Canada subsequent to that date, whose responsible parent is considered a Canadian citizen pursuant to the terms of the Canadian Citizenship Act, is a Canadian if his birth is registered with the Registrar of Canadian Citizenship within two years of its occurrence or within such extended period as the Minister may authorize in special cases.

A person who becomes a natural-born Canadian citizen in such a manner will automatically cease to be a Canadian citizen if he fails to file a declaration of retention prior to his 24th birthday or does not have his place of domicile in Canada upon that date.

Canadian Citizens other than Natural-Born.—Before the 1953 amendments to the Citizenship Act, the only persons who acquired Canadian citizenship on Jan. 1, 1947

* Prepared in the Citizenship Registration Branch under the direction of the Deputy Minister, Department of Citizenship and Immigration, Ottawa.

through the transitional clauses of Sect. 9 were persons who were naturalized in Canada before that date, British subjects who had Canadian domicile at the commencement of the Act and women lawfully admitted to Canada and married prior to Jan. 1, 1947 whose husbands would have qualified as Canadian citizens if the Act had come into force before the date of marriage. Sect. 9 was amended on June 1, 1953, so that a British subject who had his place of domicile in Canada for at least 20 years immediately before Jan. 1, 1947 need not comply with the requirements of Canadian domicile provided he was not under an order of deportation on Jan. 1, 1947.

Acquisition of Canadian Citizenship by Aliens and British Subjects.—The Act provides a means of acquiring Canadian citizenship. An alien who wishes to become a Canadian citizen must apply through his local court or through one of the special citizenship courts now established. He must appear before the judge for a hearing and will in due course be granted citizenship if his application is approved by the judge and by the Minister. A British subject may apply for citizenship directly to the Minister. It should be added that a minor child does not automatically acquire Canadian citizenship upon the grant of citizenship to the responsible parent.

Status of Married Women.—The Canadian Citizenship Act places no disabilities upon the married woman. She neither acquires nor does she lose Canadian citizenship by marriage. In order to acquire Canadian citizenship she must apply in exactly the same manner as does a man. There is, however, one advantage granted to her—if she is married to a Canadian citizen she may apply for citizenship after a residence of only one year in Canada.

The Canadian Citizenship Act also enables a woman married to an alien whose nationality she acquired upon marriage to divest herself of Canadian citizenship by the filing of a declaration of renunciation. Finally, it provides a means whereby a woman, who had become an alien through marriage prior to Jan. 1, 1947, may acquire the Canadian status she would otherwise have assumed on that date.

Status of Minor Children.—The minor child of a Canadian citizen other than a natural-born Canadian may receive a certificate of Canadian citizenship upon application therefor by his or her responsible parent, *de facto* guardian, or mother if she has custody of the child. Provision is also made in the Citizenship Act for the granting of a certificate of citizenship to a minor child in special circumstances.

Loss of Canadian Citizenship.—Canadian citizenship may be lost in the following manner:—

- (1) A Canadian citizen who when outside of Canada and not under disability acquires by a voluntary and formal act other than marriage the nationality or citizenship of a country other than Canada. This does not apply if the country is at war with Canada at the time of acquisition but in such a case the Minister may order that he cease to be a Canadian citizen. The purpose of this is to hold the person, if deemed necessary, to his obligations as a Canadian.
- (2) A natural-born Canadian citizen who is a dual national by birth or through naturalization, and any Canadian citizen on marriage, may after attaining the age of 21 cease to be a Canadian citizen through the making of a declaration of renunciation thereof.
- (3) A Canadian citizen who under the law of another country is a national or citizen of such country and who serves in the armed forces of such country when it is at war with Canada. This does not apply if the Canadian citizen became a national or citizen of such country when it was at war with Canada.
- (4) An other-than-natural-born Canadian citizen, unless he served outside Canada in the Armed Forces of Canada in time of war or other related circumstances, or unless otherwise exempt, loses his citizenship automatically if he has resided outside of Canada for ten consecutive years. The period of absence may, however, be extended upon request if the application is filed and granted before loss occurs and if good and sufficient reason exists.

Loss of Citizenship by Revocation—Applicable Only to Naturalized Persons.—In 1958 the Canadian Citizenship Act was amended and limited the provisions regarding loss of

Canadian citizenship to the following: the citizenship of a Canadian citizen other than a natural-born Canadian citizen may be revoked by the Governor in Council if, upon a report from the Minister, he is satisfied that such Canadian citizen, having been charged with the offence of treason under the Criminal Code or with an offence under the Official Secrets Act, has failed or refused to return to Canada voluntarily within such time as may be prescribed in a notice sent by the Minister to such person at his last known address and has not appeared at the preliminary inquiry into such offence or at the trial of such offence, or both as the case may be; or has obtained a certificate of naturalization or of Canadian citizenship by false representation or fraud or by concealment of material circumstances.

Doubt as to Loss of Citizenship.—Where in the opinion of the Minister a doubt exists as to whether a person has ceased to be a Canadian citizen, the Minister may refer the question to the Commission referred to in Subsection (4) of Section 19 for a ruling and the decision of the Commission or the Court, as the case may be, shall be final.

Loss of Citizenship by Revocation—Applicable to Both Natural-Born and Naturalized Persons.—The Governor in Council may in his discretion order that any person shall cease to be a Canadian citizen if, upon a report from the Minister of Citizenship and Immigration, he is satisfied that such person has, when not under a disability (1) acquired voluntarily, when in Canada, the citizenship of a foreign country (other than by marriage), (2) taken or made an oath, affirmation, or other declaration of allegiance to a foreign country, or (3) made a declaration renouncing his Canadian citizenship.

Section 2.—Canadian Citizenship Statistics

According to the 1961 Census, which required that each person state the country to which he owed allegiance and had citizenship rights as at June 1, 1961, less than 6 p.c. of Canada's population reported a country of citizenship other than Canada. Table 1 shows the citizenship of the population by province and Table 2 gives the numerical and percentage distribution of the population by country of citizenship for 1961 compared with the distribution in 1951.

1.—Citizenship of the Population, by Province, Census 1961

Province or Territory	Canadian	Other Common- wealth	United States	European Countries	Asiatic	Other	Total
	No.	No.	No.	No.	No.	No.	No.
Newfoundland.....	455,282	1,186	499	763	95	28	457,853
Prince Edward Island.....	103,618	337	283	364	16	11	104,629
Nova Scotia.....	725,686	4,568	2,254	4,122	237	140	737,007
New Brunswick.....	590,662	2,003	2,573	2,443	112	143	597,936
Quebec.....	5,078,082	31,491	16,585	121,278	4,608	7,167	5,259,211
Ontario.....	5,673,098	184,429	36,329	317,216	7,309	17,711	6,236,092
Manitoba.....	879,187	10,059	3,242	26,347	688	2,163	921,686
Saskatchewan.....	902,106	5,946	3,656	11,664	969	840	925,181
Alberta.....	1,240,895	21,353	11,674	53,129	1,982	2,911	1,331,944
British Columbia.....	1,498,498	44,647	10,908	64,641	6,973	3,415	1,629,082
Yukon and Northwest Territories.....	35,315	671	309	1,228	44	59	37,626
Canada.....	17,182,429	306,690	88,312	603,195	23,033	34,588	18,238,247

2.—Population by Country of Citizenship, with Percentage Distribution, Censuses 1951 and 1961

Country of Citizenship	1951		1961	
	No.	P.C. of Total	No.	P.C. of Total
Canada	13,567,939	96.85	17,182,429	94.21
Other Commonwealth	104,071	0.74	306,690	1.68
United States	69,000	0.49	88,312	0.48
European Countries	236,490	1.69	603,195	3.31
Austria.....	3,769	0.03	12,648	0.07
Belgium.....	4,893	0.03	10,095	0.06
Czechoslovakia.....	9,990	0.07	2,491	0.01
Denmark.....	4,432	0.03	14,921	0.08
Finland.....	6,080	0.04	11,660	0.06
France.....	5,031	0.04	21,032	0.12
Germany.....	12,926	0.09	126,241	0.69
Hungary.....	7,871	0.06	26,775	0.15
Iceland.....	137	--	404	--
Italy.....	22,616	0.16	173,337	0.95
Netherlands.....	32,179	0.23	80,096	0.44
Norway.....	2,375	0.02	4,084	0.02
Poland.....	55,771	0.40	29,977	0.16
Romania.....	3,684	0.03	2,181	0.01
Sweden.....	2,378	0.02	2,806	0.02
Union of Soviet Socialist Republics.....	46,267	0.33	11,082	0.06
Yugoslavia.....	6,718	0.05	17,363	0.10
Other.....	9,373	0.07	56,002	0.31
Asiatic Countries	15,122	0.11	23,033	0.13
China.....	12,808	0.09	13,618	0.07
Japan.....	1,312	0.01	1,875	0.01
Other.....	1,002	0.01	7,540	0.04
Other Countries¹	16,807	0.12	34,588	0.19
Grand Totals	14,009,429	100.00	18,238,247	100.00

¹ Includes persons who reported themselves as stateless.

Citizenship Certificates Issued and Granted.—Citizenship certificates “issued”, as shown in Table 3, include both certificates granted to new citizens and those issued for various reasons to persons who were already Canadian citizens; certificates “granted” means that the holders became Canadian citizens by the grant of such certificates.

3.—Citizenship Certificates Issued and Granted, by Status of Recipient, 1963 and 1964

Certificates	1963	1964	Certificates	1963	1964
Issued—			Granted to—concluded		
To Canadians by—			Alien.....	58,243	52,940
Birth.....	1,172	1,439	Adults.....	44,944	40,942
Naturalization.....	1,440	1,586	Minors.....	12,637	11,190
Marriage.....	342	375	Adopted or legitimated.....	303	365
Domicile.....	1,142	1,603	Re-acquisition of status.....	359	443
To remove doubt.....	2	12	Totals, Granted	69,468	64,334
Resumption.....	47	98	Totals, Issued and Granted	123,848	119,712
Replacements.....	2,322	2,881			
Minorities.....	47,913	47,384	Miscellaneous—		
Totals, Issued	54,380	55,378	Retention.....	143	195
Granted to—			Registration of births abroad..	5,708	6,565
British.....	11,225	11,394	Extension ¹	115	138
Adults.....	3,785	9,001	Loss by— ¹		
Minors.....	2,383	2,295	Alienation.....	542	700
Adopted or legitimated.....	57	98	Revocation.....	1	—

¹ Represents only those cases reported to the Citizenship Branch by posts abroad.

Characteristics of Persons Granted Citizenship Certificates in 1964.—Comparable detailed statistics showing the characteristics of persons granted citizenship certificates are available since 1953; such characteristics include age, marital status, occupation, period of immigration, residence and previous nationality. The number of applicants fluctuates from year to year but it is known that about 40 p.c. of the immigrants who entered Canada during the past ten years who are eligible for Canadian citizenship have become Canadians.

Of the 64,334 persons granted citizenship in 1964, fewer than 1 p.c. had immigrated to Canada before 1921, 2 p.c. in the period 1921-40, 7 p.c. in the period 1941-50 and 90 p.c. after 1950. Regionally, these new citizens were distributed as follows: 2 p.c. in the Atlantic Provinces, 18 p.c. in Quebec, 54 p.c. in Ontario, 14 p.c. in the Prairie Provinces and 12 p.c. in British Columbia. Over 87 p.c. of them resided in urban centres.

About 18 p.c. of the persons naturalized in 1964 previously owed allegiance to a British Commonwealth country, 16 p.c. were former citizens of Italy, 13 p.c. of Germany, 10 p.c. of the Netherlands, 7 p.c. of Hungary, 5 p.c. of Greece and 5 p.c. of Yugoslavia. Most of the persons designated as "stateless" were born in Poland, the U.S.S.R., Yugoslavia, Hungary, Germany, Czechoslovakia and Romania.

Among the males in the labour force naturalized in 1964, craftsmen, production process and related workers occupations were reported by 45 p.c., 12 p.c. were in service and recreation occupations, 11 p.c. were in professional and technical occupations, labourers accounted for 9 p.c., managerial occupations for 6 p.c., clerical workers for 5 p.c. and farmers and farm workers for 4 p.c. each. Of the females, 47 p.c. were homemakers and, among those employed outside the home, 32 p.c. were in the craftsmen, production process and related workers occupations group, 26 p.c. were in service and recreation occupations and 24 p.c. were in clerical occupations.

4.—Persons Granted Citizenship Certificates in 1963 and 1964, by Province of Residence, and Period of Immigration to Canada

Year and Residence	Period of Immigration						Born in Canada ¹	Total
	Before 1921	1921-1930	1931-1940	1941-1950	1951-1960	1961-1963		
	No.	No.	No.	No.	No.	No.	No.	No.
1963								
Residing in Canada.....	459	851	302	4,916	61,765	984	103	69,380
Newfoundland.....	1	—	2	11	132	9	—	155
Prince Edward Island.....	1	2	—	9	59	1	—	72
Nova Scotia.....	2	6	8	54	351	14	—	435
New Brunswick.....	3	5	3	58	257	13	4	343
Quebec.....	58	120	32	541	11,737	170	24	12,682
Ontario.....	112	287	110	2,449	33,052	536	26	36,572
Manitoba.....	52	68	30	283	2,473	44	11	2,961
Saskatchewan.....	39	82	12	118	849	14	12	1,126
Alberta.....	81	155	59	637	5,337	52	11	6,332
British Columbia.....	110	124	46	750	7,316	126	15	8,487
Yukon and N.W.T.....	—	2	—	6	202	5	—	215
Residing Outside Canada.....	1	—	1	18	61	4	3	88
Totals, Naturalized.....	460	851	303	4,934	61,826	988	106	69,468

¹ Canadian-born persons who lost their citizenship by marriage; this applies to females only.

4.—Persons Granted Citizenship Certificates in 1963 and 1964 by Province of Residence, and Period of Immigration to Canada—concluded

Year and Residence	Period of Immigration						Born in Canada ¹	Total
	Before 1921	1921-1930	1931-1940	1941-1950	1951-1960	1961-1964		
1964	No.	No.	No.	No.	No.	No.	No.	No.
Residing in Canada.....	538	794	263	4,570	56,245	1,618	173	64,201
Newfoundland.....	1	1	—	19	119	5	—	145
Prince Edward Island.....	—	3	2	8	31	3	—	47
Nova Scotia.....	5	7	7	59	434	29	4	545
New Brunswick.....	1	6	—	33	242	20	1	303
Quebec.....	67	115	29	492	10,549	309	26	11,587
Ontario.....	119	277	104	2,287	31,080	862	69	34,798
Manitoba.....	46	68	20	275	2,106	62	9	2,586
Saskatchewan.....	63	68	18	125	800	19	15	1,108
Alberta.....	88	133	50	595	4,417	107	24	5,414
British Columbia.....	148	113	33	669	6,314	197	24	7,498
Yukon and N.W.T.....	—	3	—	8	153	5	1	170
Residing Outside Canada.....	1	2	1	12	94	12	11	133
Totals, Naturalized.....	539	796	264	4,582	56,339	1,630	184	64,334

¹ Canadian-born persons who lost their citizenship by marriage; this applies to females only.

5.—Persons Granted Citizenship Certificates in 1963 and 1964, by Age Group and Sex

Age Group	1963			1964		
	Males	Females	Total	Males	Females	Total
	No.	No.	No.	No.	No.	No.
0-14 years.....	4,678	4,266	8,944	3,924	3,631	7,555
15-19 ".....	3,103	2,715	5,818	3,088	2,671	5,759
20-29 ".....	10,164	7,017	17,181	8,590	6,563	15,153
30-39 ".....	12,094	8,125	20,219	10,694	7,827	18,521
40-49 ".....	5,607	4,234	9,841	5,366	4,345	9,711
50-59 ".....	2,522	2,216	4,738	2,398	2,312	4,710
60-69 ".....	1,020	1,151	2,171	1,107	1,203	2,310
70+ ".....	259	297	556	322	293	615
Totals, All Ages.....	39,447	30,021	69,468	35,489	28,845	64,334

6.—Persons Granted Citizenship Certificates in 1963 and 1964, by Occupation and Sex

Occupation	1963			1964		
	Males	Females	Total	Males	Females	Total
	No.	No.	No.	No.	No.	No.
Managerial.....	1,794	181	1,975	1,549	151	1,700
Professional and technical.....	3,224	1,025	4,249	3,112	1,014	4,126
Clerical.....	1,464	2,443	3,907	1,329	2,252	3,581
Transport and communication.....	1,043	54	1,097	988	47	1,035
Sales.....	982	357	1,339	865	366	1,231
Service and recreation.....	3,573	2,603	6,176	3,411	2,488	5,899
Farmers and farm workers.....	1,440	39	1,479	1,120	44	1,164
Fishermen, trappers and loggers.....	241	1	242	174	—	174
Miners, quarrymen and related workers.....	463	1	464	360	1	361
Craftsmen, production process and related workers	13,865	2,983	16,848	12,444	3,035	15,479
Labourers, <i>n.e.s.</i>	2,984	29	3,013	2,518	19	2,537
Homemakers.....	—	13,634	13,634	—	13,425	13,425
No occupation (including students, retired, etc.)	4,079	2,846	6,925	4,040	2,701	6,741
Children under 14 years of age.....	3,925	3,607	7,532	3,281	3,073	6,354
Not stated ¹	370	218	588	298	229	527
Totals, All Occupations.....	39,447	30,021	69,468	35,489	28,845	64,334

¹ Mainly children over 14 years of age.

7.—Persons Granted Citizenship Certificates in 1963 and 1964, by Country of Birth

Country of Birth	1963	1964	Country of Birth	1963	1964
	No.	No.		No.	No.
Algeria.....	95	39	Morocco.....	285	206
Argentina.....	69	95	Netherlands.....	6,816	5,951
Australia.....	112	108	Norway.....	305	228
Austria.....	1,257	1,143	Poland.....	3,327	3,692
Belgium.....	898	849	Portugal.....	977	1,195
Britain.....	8,352	8,149	Romania.....	632	593
British Guiana.....	111	128	South Africa.....	144	161
Canada.....	275	347	Spain.....	237	210
China.....	1,735	1,920	Sweden.....	135	138
Czechoslovakia.....	596	480	Switzerland.....	438	309
Denmark.....	1,270	990	Turkey.....	165	198
Egypt.....	199	227	Union of Soviet Socialist Republics.....	2,508	1,351
Finland.....	711	661	United States.....	739	783
France.....	1,046	852	West Indies.....	582	612
Germany.....	8,797	7,647	Yugoslavia.....	4,042	3,324
Greece.....	3,134	3,216	Other.....	839	1,616
Hong Kong.....	87	179			
Hungary.....	6,580	4,455	Totals, All Countries.....	69,468	64,334
India.....	352	473			
Indonesia.....	105	127			
Ireland, Republic of.....	590	543	Commonwealth.....	10,426	10,679
Israel.....	196	301	Other Asia.....	2,628	3,033
Italy.....	10,216	10,259	Other Europe.....	54,605	48,886
Japan.....	86	72	South America.....	283	293
Lebanon.....	239	281	United States.....	739	783
Malta.....	189	226	Other.....	787	660

8.—Persons Granted Citizenship Certificates in 1963 and 1964, by Country of Former Allegiance

Country of Former Allegiance	1963	1964	Country of Former Allegiance	1963	1964
	No.	No.		No.	No.
Commonwealth countries.....	11,251	11,405	Lebanon.....	238	310
Austria.....	1,164	1,059	Lithuania.....	236	180
Belgium.....	825	779	Netherlands.....	7,002	6,146
Bulgaria.....	44	28	Norway.....	307	246
China.....	1,707	1,922	Poland.....	2,804	3,229
Czechoslovakia.....	347	248	Portugal.....	977	1,196
Denmark.....	1,280	1,021	Romania.....	253	234
Estonia.....	288	214	Spain.....	243	211
Finland.....	706	658	Sweden.....	127	126
France.....	1,245	957	Switzerland.....	448	315
Germany.....	10,224	8,566	Turkey.....	126	155
Greece.....	3,175	3,275	Union of Soviet Socialist Republics...	1,256	1,085
Hungary.....	6,551	4,362	United States.....	946	995
Israel.....	432	948	Yugoslavia.....	3,785	3,125
Italy.....	10,323	10,333	Other.....	716	679
Japan.....	85	76			
Latvia.....	357	251	Totals, All Countries.....	69,468	64,334

CHAPTER V.—VITAL STATISTICS*

CONSPPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

Vital statistics provide a key to the interpretation of population development—a measure of the pace at which it is growing, the rate at which women are marrying and reproducing, and the effect this has on the age and sex distribution of the population, as well as the relative importance of the diseases that cause death each year. Vital statistics constitute the record of births, deaths, marriages and divorces registered in the provinces and territories of Canada. The continuity of such data gives a constant guide to the planning, operation and evaluation of many national activities, particularly in the fields of public health, education, community planning and various types of business enterprise.

This Chapter gives a fairly detailed coverage of the vital statistics information available, gives life tables for males and females and presents a comparison of the principal Canadian vital statistics rates with those of other countries. In making international and interprovincial comparisons of birth, death and marriage rates, it is important to note that part of the differences observed over a period of years as between countries, provinces or local areas may be caused by differences in the sex and age distribution of the populations involved. Similarly, rates for any one area may be affected by changes in such distribution. The population data upon which vital statistics rates are computed are given in Chapter III of this volume. Births and deaths are classified by place of residence (births according to the residence of the mother) and marriages by place of occurrence.

The history of the collection of vital statistics in Canada is covered in the 1948-49 Year Book, pp. 185-188. Detailed information is given in *Vital Statistics* (Preliminary Report) (Catalogue No. 84-201), *Vital Statistics of Canada* (Catalogue No. 84-202) and in other regular and special reports; in addition, certain unpublished data are available on request.

Section 1.—Summary of Vital Statistics

Table 1 gives a summary for reference purposes of the principal vital statistics of the provinces and territories of Canada for five-year periods 1941-60 and for single years 1961-63. Table 2 shows similar data for urban centres having at least 20,000 population at the date of the 1961 Census for the year 1963 with comparative averages for 1956-60.

* Revised in the Vital Statistics Section, Health and Welfare Division, Dominion Bureau of Statistics.

1. —Summary of Principal Vital Statistics, by Province, 1941-63

NOTE.—Figures for the years 1921, when the collection of national statistics was initiated, to 1940 are given in previous editions of the Year Book. Figures for neonatal mortality (within the first four weeks of birth) are given on p. 269 and those for divorces on p. 278.

Province and Year	Live Births		Deaths		Natural Increase ¹		Infant Mortality ²		Maternal Mortality		Marriages	
	No.	Rate ³	No.	Rate ³	No.	Rate ³	No.	Rate ⁴	No.	Rate ⁴	No.	Rate ³
Newfoundland—												
Av. 1941-45.....	9,292	29.8	3,681	11.8	5,611	18.0	852	91.7	39	4.2	2,967	9.5
" 1946-50.....	12,352	36.2	3,179	9.3	9,173	26.9	754	61.1	25	2.0	2,711	8.0
" 1951-55.....	13,101	34.1	2,926	7.6	10,175	26.5	598	45.6	24	1.8	2,836	7.4
" 1956-60.....	14,934	34.6	3,114	7.2	11,820	27.4	585	39.2	17	1.1	3,032	7.0
1961.....	15,591	34.1	3,038	6.6	12,553	27.5	588	37.7	11	0.7	3,306	7.2
1962.....	15,064	32.1	3,198	6.8	11,866	25.3	597	39.6	5	0.3	3,274	7.0
1963.....	15,443	32.1	3,183	6.6	12,260	25.5	592	38.3	7	0.5	3,280	6.8
P.E. Island—												
Av. 1941-45.....	2,180	23.7	964	10.5	1,216	13.2	114	52.4	9	3.9	686	7.5
" 1946-50.....	2,869	30.5	922	9.8	1,947	20.7	114	39.7	4	1.3	677	7.2
" 1951-55.....	2,720	27.2	923	9.2	1,797	18.0	88	32.4	2	0.8	623	6.2
" 1956-60.....	2,674	26.6	953	9.5	1,721	17.1	87	32.7	1	0.3	645	6.4
1961.....	2,838	27.1	978	9.3	1,860	17.8	93	32.8	1	0.4	624	6.0
1962.....	2,805	26.5	1,056	10.0	1,749	16.5	87	31.0	—	—	677	6.4
1963.....	2,949	27.6	979	9.1	1,970	18.5	63	21.4	3	1.0	684	6.4
Nova Scotia—												
Av. 1941-45.....	15,146	25.2	6,326	10.5	8,820	14.7	870	57.5	41	2.7	6,302	10.5
" 1946-50.....	17,994	28.9	6,042	9.7	11,952	19.2	760	42.2	22	1.2	5,525	8.9
" 1951-55.....	18,246	27.5	5,802	8.8	12,444	18.7	586	32.1	13	0.7	5,283	8.0
" 1956-60.....	19,097	26.9	6,062	8.5	13,035	18.4	559	29.3	9	0.5	5,289	7.4
1961.....	19,382	26.3	6,135	8.3	13,247	18.0	538	27.8	4	0.2	5,292	7.2
1962.....	19,432	26.0	6,342	8.5	13,090	17.5	614	31.6	9	0.5	5,256	7.0
1963.....	18,976	25.1	6,367	8.4	12,609	16.7	513	27.0	2	0.1	5,127	6.8
New Brunswick—												
Av. 1941-45.....	13,037	28.2	5,050	10.9	7,987	17.3	960	73.7	42	3.2	4,433	9.6
" 1946-50.....	16,878	34.0	4,886	9.8	11,992	24.2	1,015	60.1	23	1.4	4,684	9.8
" 1951-55.....	16,496	31.0	4,576	8.6	11,920	22.4	717	43.5	16	0.9	4,306	8.1
" 1956-60.....	16,567	29.0	4,640	8.1	11,927	20.9	567	34.2	8	0.5	4,357	7.6
1961.....	16,590	27.7	4,695	7.9	11,895	19.8	434	26.2	8	0.5	4,504	7.5
1962.....	16,467	27.1	4,788	7.9	11,679	19.2	498	30.2	7	0.4	4,382	7.2
1963.....	15,771	25.7	4,815	7.8	10,956	17.9	435	27.6	6	0.4	4,391	7.2
Quebec—												
Av. 1941-45.....	97,906	28.4	34,273	9.9	63,633	18.5	6,690	68.3	318	3.2	33,126	9.6
" 1946-50.....	115,496	30.4	33,723	8.9	81,773	21.5	6,205	53.7	227	2.0	34,874	9.2
" 1951-55.....	128,523	30.0	34,269	8.0	94,255	22.0	5,662	44.1	149	1.2	35,584	8.3
" 1956-60.....	139,844	28.6	35,714	7.3	104,130	21.3	5,000	35.8	105	0.7	36,798	7.5
1961.....	137,174	26.1	37,044	7.0	100,130	19.1	4,319	31.5	89	0.6	35,943	6.8
1962.....	135,000	25.2	37,142	6.9	97,858	18.3	4,294	31.8	69	0.5	37,038	6.9
1963.....	133,640	24.4	38,217	7.0	95,423	17.4	4,012	30.0	61	0.5	37,358	6.8
Ontario—												
Av. 1941-45.....	77,738	19.9	39,738	10.2	38,000	9.7	3,276	42.1	197	2.5	38,042	9.7
" 1946-50.....	105,161	24.6	42,214	9.9	62,947	14.7	3,795	36.1	129	1.2	44,084	10.3
" 1951-55.....	128,861	26.1	44,715	9.0	84,146	17.1	3,634	28.2	83	0.6	45,213	9.1
" 1956-60.....	152,688	26.4	49,431	8.5	103,257	17.9	3,741	24.5	65	0.4	46,482	8.0
1961.....	157,663	25.3	50,997	8.2	106,666	17.1	3,626	23.0	67	0.4	44,434	7.1
1962.....	156,053	24.6	52,156	8.2	103,897	16.4	3,621	23.2	54	0.3	44,454	7.0
1963.....	155,089	24.1	53,617	8.3	101,472	15.8	3,532	22.8	46	0.3	45,306	7.0
Manitoba—												
Av. 1941-45.....	15,831	21.8	6,633	9.1	9,198	12.7	814	51.4	41	2.6	7,295	10.0
" 1946-50.....	19,325	25.9	6,702	9.0	12,623	16.9	810	41.9	24	1.3	7,605	10.2
" 1951-55.....	21,321	26.4	6,775	8.4	14,546	18.0	675	31.7	15	0.7	7,104	8.8
" 1956-60.....	22,408	25.6	7,293	8.3	15,115	17.3	671	30.0	10	0.5	6,600	7.5

For footnotes, see end of table, p. 244.

1.—Summary of Principal Vital Statistics, by Province, 1941-63—concluded

Province or Territory and Year	Live Births		Deaths		Natural Increase ¹		Infant Mortality ²		Maternal Mortality		Marriages	
	No.	Rate ³	No.	Rate ³	No.	Rate ³	No.	Rate ⁴	No.	Rate ⁴	No.	Rate ³
Manitoba—concl.												
1961.....	23,288	25.3	7,369	8.0	15,919	17.3	588	25.2	13	0.6	6,512	7.1
1962.....	22,918	24.5	7,453	8.0	15,465	16.5	600	26.2	7	0.3	6,354	6.8
1963.....	22,751	23.9	7,928	8.3	14,823	15.6	561	24.7	10	0.4	6,694	7.0
Saskatchewan—												
Av. 1941-45.....	18,444	21.7	6,437	7.6	12,007	14.1	858	46.5	52	2.8	6,541	7.7
" 1946-50.....	21,907	26.3	6,473	7.8	15,434	18.5	883	40.3	29	1.3	7,413	8.9
" 1951-55.....	23,554	27.5	6,547	7.6	17,007	19.9	743	31.5	16	0.7	6,876	8.0
" 1956-60.....	24,046	26.9	6,753	7.5	17,293	19.4	634	26.3	9	0.4	6,395	7.1
1961.....	23,994	25.9	7,107	7.7	16,887	18.2	618	25.8	6	0.3	6,149	6.6
1962.....	23,341	25.1	7,004	7.5	16,337	17.6	605	25.9	5	0.2	6,044	6.5
1963.....	23,543	25.2	7,441	8.0	16,102	17.2	638	27.1	7	0.3	6,197	6.6
Alberta—												
Av. 1941-45.....	18,845	23.7	6,355	8.0	12,490	15.7	827	43.9	46	2.4	7,977	10.0
" 1946-50.....	24,290	28.4	6,814	8.0	17,476	20.4	889	36.6	25	1.0	9,090	10.6
" 1951-55.....	31,087	30.6	7,527	7.4	23,560	23.2	894	28.7	15	0.5	9,750	9.6
" 1956-60.....	36,920	30.6	8,329	6.9	28,591	23.7	940	25.5	13	0.3	10,230	8.5
1961.....	38,914	29.2	8,863	6.7	30,051	22.5	1,044	26.8	9	0.2	10,474	7.9
1962.....	38,804	28.3	9,264	6.8	29,540	21.5	984	25.4	16	0.4	10,423	7.6
1963.....	38,467	27.4	9,444	6.7	29,023	20.7	908	23.6	11	0.3	10,163	7.2
British Columbia—												
Av. 1941-45.....	17,705	19.8	9,368	10.5	8,337	9.3	684	38.6	46	2.6	9,535	10.7
" 1946-50.....	25,859	24.0	10,992	10.2	14,867	13.9	868	33.6	31	1.2	11,564	10.7
" 1951-55.....	31,347	25.1	12,233	9.8	19,114	15.3	856	27.3	17	0.5	11,131	8.9
" 1956-60.....	38,930	25.7	13,980	9.2	24,950	16.5	1,011	26.0	16	0.4	11,955	7.9
1961.....	38,591	23.7	14,403	8.8	24,188	14.9	945	24.5	10	0.3	10,964	6.7
1962.....	38,128	23.0	14,912	9.0	23,216	14.0	878	23.0	17	0.4	11,196	6.7
1963.....	37,478	22.1	15,029	8.9	22,449	13.2	879	23.5	11	0.3	11,677	6.9
Yukon Territory—												
Av. 1941-45.....	105	21.0	96	19.3	9	1.7	11	100.8	1	5.7	60	12.1
" 1946-50.....	254	31.7	91	11.4	163	20.3	16	63.0	--	1.6	73	9.1
" 1951-55.....	413	43.0	90	9.4	323	33.6	22	52.8	--	0.5	94	9.8
" 1956-60.....	505	39.4	91	7.1	414	32.3	22	43.6	--	0.4	109	8.5
1961.....	558	38.1	94	6.4	464	31.7	23	41.2	1	1.8	128	8.8
1962.....	547	36.5	75	5.0	472	31.5	27	49.4	1	1.8	109	7.3
1963.....	499	33.3	81	5.4	418	27.9	16	32.1	—	—	95	6.3
Northwest Territories—												
Av. 1941-45.....	383	31.9	332	27.7	51	4.2	72	188.5	2	4.7	95	7.9
" 1946-50.....	626	39.1	372	23.2	254	15.9	87	138.7	3	5.4	139	8.7
" 1951-55.....	666	40.1	284	17.1	382	23.0	78	117.1	2	3.6	115	6.9
" 1956-60.....	943	46.7	310	15.3	633	31.4	135	143.2	3	3.0	155	7.7
1961.....	1,117	48.6	262	11.4	855	37.2	124	111.0	—	—	145	6.3
1962.....	1,134	47.3	309	12.9	825	34.4	136	119.9	1	0.9	174	7.3
1963.....	1,161	48.4	266	11.1	895	37.3	121	104.2	1	0.9	139	5.8
Canada—⁵												
Av. 1941-45.....	277,320	23.5	115,572	9.8	161,748	13.7	15,176	54.7	793	2.9	114,091	9.7
" 1946-50.....	355,748	27.4	120,438	9.3	235,310	18.1	15,723	44.2	527	1.5	126,898	9.8
" 1951-55.....	416,334	28.0	126,666	8.5	289,668	19.5	14,552	35.0	353	0.8	128,915	8.7
" 1956-60.....	469,555	27.6	136,669	8.0	332,886	19.6	13,953	29.7	255	0.5	132,047	7.8
1961.....	475,700	26.1	140,985	7.7	334,715	18.4	12,940	27.2	219	0.5	128,475	7.0
1962.....	469,693	25.3	143,699	7.7	325,994	17.6	12,941	27.6	191	0.4	129,381	7.0
1963.....	465,767	24.6	147,367	7.8	318,400	16.8	12,270	26.3	165	0.4	131,111	6.9

¹ Excess of births over deaths.² Deaths under one year of age; deaths within the first four weeks of

birth are given on p. 269.

³ Per 1,000 population.⁴ Per 1,000 live births.⁵ Figures for Newfoundland are included from 1949.

2.—Summary of Principal Vital Statistics for Incorporated Urban Centres of 20,000 Population or Over,¹ 1963 with Average for 1956-60

NOTE.—Birth, death and natural increase rates cannot be computed for 1963 or the period 1956-60 since urban centre populations are not known for intercensal periods. Urban centres are designated in this table by the following abbreviations: c.=city, t.=town, vl.=village and d.m.=district municipality.

Province and Urban Centre	Live Births		Deaths		Natural Increase ²		Infant Mortality ³		Neonatal Mortality ⁴		Marriages ⁵	
	Av. 1956-60	1963	Av. 1956-60	1963	Av. 1956-60	1963	Av. 1956-60	1963	Av. 1956-60	1963	Av. 1956-60	1963
	No.	No.	No.	No.	No.	No.	Rate ⁶	Rate ⁶	Rate ⁶	Rate ⁶	No.	No.
Newfoundland—												
Corner Brook, c.	940	919	127	123	813	796	36.4	34.8	21.5	21.8	210	211
St. John's, c.	2,010	1,900	521	502	1,489	1,398	28.2	21.1	21.8	14.7	689	773
Prince Edward Island—												
Charlottetown, c. ⁷	456	435	210	226	246	209	36.0	5	24.6	3	172	155
Nova Scotia—												
Dartmouth, c.	881	1,739	136	254	745	1,485	24.1	48	16.3	14.4	177	269
Glace Bay, t.	623	524	219	194	404	330	44.3	18	34.4	13	181	131
Halifax, c.	2,441	2,187	762	739	1,679	1,448	27.6	51	23.3	28	1,112	1,045
Sydney, c.	950	785	259	310	691	475	13.7	22	8.4	12	275	240
New Brunswick—												
Moncton, c.	1,050	1,071	274	312	776	759	22.5	21	14.5	15	348	352
Saint John, c.	1,499	1,402	589	564	910	838	27.0	36	17.9	25	532	524
Quebec—												
Cap de la Madeleine, c.	723	670	152	167	571	503	32.4	20	23.1	11	204	224
Chicoutimi, c.	1,004	942	188	212	816	730	46.4	38	40.3	27	223	225
Chonoué, c.	752	1,119	96	202	656	917	23.0	34	15.6	29	223	139
Drummondville, c.	746	669	187	220	559	449	43.2	35	52.3	29	82	232
Granby, c.	877	868	180	197	697	671	27.8	24	27.6	17	233	265
Hull, c.	1,742	1,679	385	411	1,357	1,268	39.2	63	37.5	48	429	419
Jacques Cartier, c.	1,233	1,273	202	196	1,031	1,077	36.0	31	24.4	22	193	222
Jonquière, c.	1,992	848	138	114	1,854	734	34.9	15	17.7	9	201	199
LaSalle, c.	886	848	174	272	612	576	21.7	24	28.3	20	264	280
LaSalle, c.	858	1,009	155	209	703	800	18.2	29	28.7	19	188	139
Longueuil, c.	882	651	136	142	746	423	22.9	14	21.5	12	95	171
Montreal, c.	29,478	26,737	10,241	10,112	19,237	16,625	28.1	659	24.6	491	11,163	9,952
Montreal North, c.	1,128	1,392	192	192	936	1,002	28.0	44	31.6	23	132	193
Mount Royal, t.	1,276	245	96	122	180	123	21.0	5	20.4	3	160	151
Outremont, c.	337	322	294	294	43	28	24.9	7	17.8	6	273	202

For footnotes, see end of table, p. 247.

2.—Summary of Principal Vital Statistics for Incorporated Urban Centres of 20,000 Population or Over,¹
1963 with Average for 1956-60—concluded

Province and Urban Centre	Live Births		Deaths		Natural Increase ²		Infant Mortality ³		Neonatal Mortality ⁴		Marriages ⁵	
	Av. 1956-60	1963	Av. 1956-60	1963	Av. 1956-60	1963	Av. 1956-60	1963	Av. 1956-60	1963	Av. 1956-60	1963
	No.	No.	No.	No.	No.	No.	Rate ⁵	Rate ⁶	Rate ⁵	Rate ⁶	No.	No.
Quebec—concluded												
Pointe aux Trembles, c.....	510	581	120	203	390	378	35.7	16	27.5	21.2	11	18.9
Pointe Claire, c.....	448	453	111	153	337	300	18.8	5	11.0	11.6	3	6.6
Quebec, c.....	4,345	3,644	1,660	1,659	2,776	1,985	39.1	116	31.8	22.9	94	25.8
St. Foy, c.....	729	1,067	88	174	641	893	46.9	19	17.8	15.6	12	11.2
St. Hyacinthe, c.....	490	502	236	319	254	183	26.5	21	41.8	19.6	13	25.9
St. Jean, c.....	777	636	162	192	615	444	34.5	25	37.3	24.0	12	18.9
St. Jeanne, c.....	661	670	150	181	511	489	34.5	25	20.9	16.5	20	28.9
St. Laurent, c.....	1,132	1,044	233	298	899	746	19.3	20	19.2	13.2	10	9.6
St. Michel, c.....	1,532	2,280	158	268	1,375	2,012	25.8	51	22.4	16.8	36	15.8
Shawville, c.....	1,862	637	186	197	666	440	43.1	28	44.0	32.9	17	26.7
Sherbrooke, c.....	1,771	1,846	482	509	1,289	1,347	20.5	51	27.9	16.3	33	17.9
Thurso, c.....	668	534	138	116	530	418	35.4	47	16.9	18.3	6	11.2
Trois-Rivières, c.....	1,512	1,499	405	449	1,107	1,050	34.0	25	37.1	22.0	34	22.3
Valleyfield, c.....	704	677	196	207	505	497	33.0	25	37.1	21.7	15	22.3
Verdon, c.....	1,822	1,577	617	593	1,206	984	22.7	41	26.0	16.0	30	19.0
Westmount, c.....	252	242	275	267	-23	-25	23.0	10	41.3	16.7	6	24.8
Ontario—												
Barrie, c.....	572	573	158	203	414	370	28.3	15	26.2	21.0	14	24.4
Bellefleur, c.....	645	787	229	274	416	513	23.3	13	16.5	17.1	11	14.0
Brantford, c.....	1,213	1,181	449	535	715	646	22.3	24	20.3	16.3	22	18.6
Burlington, t.....	1,719	1,169	149	282	570	907	15.6	21	18.0	12.0	16	13.7
Chatham, c.....	649	800	251	286	398	514	27.1	16	18.8	21.9	21	13.8
Cornwall, c.....	1,162	1,081	310	348	852	733	32.7	34	31.5	23.1	21	19.4
Eastview, t.....	975	1,003	119	129	856	874	22.1	21	20.9	16.8	18	17.7
Forest Hill, vl.....	234	253	151	164	83	89	16.2	4	15.8	10.2	3	11.9
Fort William, c.....	1,063	1,001	343	433	720	568	23.7	30	30.0	18.6	23	23.0
Galt, c.....	594	649	235	259	359	390	18.9	22	33.9	14.1	15	23.1
Guelph, c.....	957	1,063	332	386	655	677	24.1	21	19.8	17.8	18	16.9
Hamilton, c.....	6,544	6,501	2,240	2,514	4,304	3,987	21.4	116	17.8	15.2	86	13.2
Kitchener, c.....	1,358	1,372	487	489	871	883	25.0	31	22.6	17.5	30	21.9
Kitchener, c.....	1,783	2,104	513	539	1,270	1,565	20.8	42	20.0	16.8	34	16.2
London, c.....	2,573	4,249	1,090	1,527	1,483	2,722	27.7	108	25.4	19.0	86	20.2
Niagara Falls, c.....	1,296	1,158	400	420	896	738	23.4	23	19.9	17.7	20	17.3
North Bay, c.....	723	703	188	231	535	472	23.8	11	15.6	14.9	6	8.5
Oakville, c.....	263	1,065	80	238	183	827	23.5	21	19.7	18.2	16	15.0

	1 592	1 818	361	494	1 231	3 944	24.4	40	22.0	18.3	27	14.9	471	548
Oshawa, c.....	1 592	1 818	361	494	1 231	3 944	24.4	40	22.0	18.3	27	14.9	471	548
Ottawa, c.....	6 268	2 170	2 324	3 768	3 944	3 944	24.6	173	22.0	17.7	139	22.2	2 139	2 136
Peterborough, c.....	1 138	996	414	456	760	540	26.0	19	19.1	20.4	14	14.1	399	365
Port Arthur, c.....	1 054	998	394	456	624	542	23.3	26	26.1	16.1	23	23.0	390	378
St. Catharines, c.....	2 091	1 899	640	724	1 451	1 175	22.3	41	21.6	18.1	28	14.7	638	648
St. Thomas, c.....	428	462	244	313	184	149	21.0	13	28.1	15.9	11	23.8	203	217
Sarnia, c.....	1 406	1 248	339	370	1 067	878	22.9	25	20.0	17.1	15	16.0	353	363
Sault Ste. Marie, c.....	1 163	1 146	309	302	864	844	21.8	18	15.7	15.5	15	13.1	511	457
Stratford, c.....	438	420	231	257	207	163	18.7	12	28.6	14.1	11	26.2	166	190
Sudbury, c.....	1 821	2 349	363	519	1 458	1 830	27.6	49	20.9	20.8	40	17.0	684	699
Timmins, t.....	801	778	232	250	569	528	34.5	28	36.0	22.5	17	21.9	240	237
Toronto, c.....	15 953	14 840	7 386	7 147	8 567	7 693	23.0	324	21.8	17.3	248	16.7	11 800	9 689
Waterloo, c.....	492	516	133	154	359	362	23.2	5	9.7	16.3	4	7.8	126	146
Welland, c.....	390	865	161	297	229	568	22.5	25	28.9	15.4	17	19.7	268	316
Windsor, c.....	2 825	2 420	1 158	1 267	1 667	1 132	26.9	56	23.1	20.5	38	15.6	1 319	1 335
Woodstock, c.....	487	490	188	196	299	294	22.6	18	36.7	15.2	13	26.5	175	161
Manitoba—														
Brandon, c.....	680	666	228	274	452	392	22.1	20	30.0	16.8	14	21.0	248	224
Kildonan East, c.....	600	601	126	151	474	450	21.3	7	11.6	16.7	7	11.6	106	184
Kildonan West, c.....	386	374	99	145	287	229	13.0	5	13.4	10.4	4	10.7	50	79
St. Boniface, c.....	982	1 068	305	334	657	734	23.3	12	11.2	16.6	9	8.4	280	325
St. James, c.....	715	698	210	242	505	386	21.7	10	15.9	16.4	9	14.3	214	225
St. Vital, c.....	618	685	156	212	462	483	23.1	13	18.7	16.2	11	15.8	110	128
Winnipeg, c.....	6 169	5 913	2 633	2 785	3 536	3 128	26.2	124	21.0	19.5	89	15.1	2 847	2 616
Saskatchewan—														
Moose Jaw, c.....	909	805	323	344	586	461	20.7	21	26.1	15.8	16	19.9	296	293
Prince Albert, c.....	642	743	173	163	469	580	29.6	18	24.2	20.6	14	18.8	273	240
Regina, c.....	2 922	3 379	681	889	2 241	2 490	23.3	79	23.4	17.5	56	16.6	1 004	980
Saskatoon, c.....	2 504	2 869	650	770	1 854	2 099	20.8	52	18.1	16.2	42	14.6	876	938
Alberta—														
Calgary, c.....	6 937	8 079	1 569	1 913	5 368	6 166	22.4	159	19.7	16.4	120	14.9	2 205	2 135
Edmonton, c.....	8 807	8 750	1 670	1 920	7 137	6 830	22.3	178	20.3	16.3	139	15.9	3 136	3 072
Jasper Place, t.....	1 177	899	1 77	1 50	822	1 027	17.6	22	18.7	12.5	19	16.1	31	64
Lethbridge, c.....	897	906	249	323	648	583	21.9	20	24.3	18.3	20	22.1	382	334
Medicine Hat, c.....	586	602	211	258	375	344	22.9	20	33.2	14.7	15	22.9	271	267
British Columbia—														
Burnaby, d.m.....	2 477	2 073	719	743	1 758	1 330	20.1	35	16.9	14.4	26	12.5	498	536
Coquitlam, d.m.....	642	708	110	144	532	624	19.6	15	19.5	14.0	12	15.6	59	112
New Westminster, c.....	640	585	326	359	314	226	17.8	8	13.7	12.5	8	13.7	551	549
North Vancouver, c.....	626	553	195	219	431	334	20.4	6	10.8	14.0	3	5.4	160	177
North Vancouver, d.m.....	920	889	188	224	732	665	17.0	8	9.0	10.4	6	6.7	94	106
Richmond, d.m.....	1 055	1 083	178	211	877	872	18.4	16	14.8	10.5	10	9.2	116	150
Saanich, d.m.....	1 026	1 081	384	399	642	682	18.5	29	26.8	13.6	24	22.2	130	205
Surrey, d.m.....	1 709	1 804	455	510	1 254	1 294	18.4	34	18.8	13.0	25	13.9	209	296
Vancouver, c.....	8 211	7 783	4 580	4 758	3 631	2 025	21.0	134	19.8	15.1	110	16.2	4 588	3 796
Victoria, c.....	1 236	1 032	552	501	384	131	23.8	14	13.6	16.2	11	10.7	698	679
West Vancouver, d.m.....	1 404	1 398	183	202	221	196	22.8	5	12.6	16.3	2	5.0	121	163

¹ As at the date of the 1961 Census; residents only.

² Excess of births over deaths.

³ Deaths under one year of age.

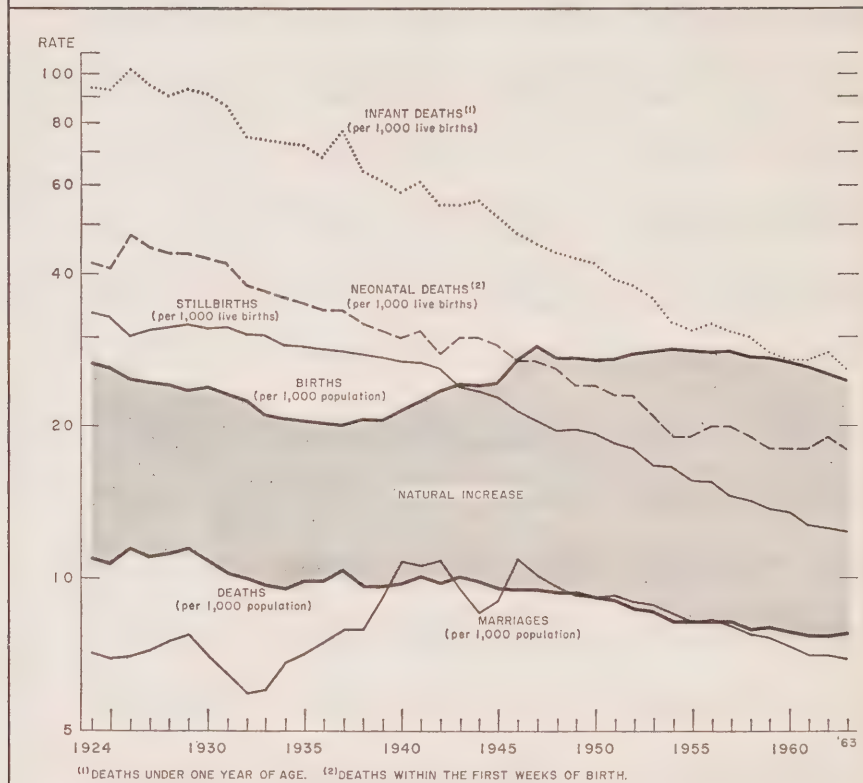
⁴ Deaths under 28 days.

⁵ By place of occurrence.

⁶ Per 1,000 live births.

⁷ Population fewer than 20,000 at date of 1961 Census but included as the largest urban centre in Prince Edward Island.

VITAL STATISTICS RATES, 1924-63



Section 2.—Births*

No accurate figures on Canadian crude† birth rates are available prior to 1921, when the annual collection of official national figures was initiated. However, the following rough estimates of the average annual crude rates for each ten-year intercensal period between 1851 and 1921 may be inferred from studies of early Canadian census data:—

Intercensal Period	Estimated Average Annual Crude Birth Rate (per 1,000 Population)	Intercensal Period	Estimated Average Annual Crude Birth Rate (per 1,000 Population)
1851-61.....	45	1891-1901.....	30
1861-71.....	40	1901-11.....	31
1871-81.....	37	1911-21.....	29
1881-91.....	34		

* Unless otherwise indicated, "births" in this Section refer to infants born alive; stillbirths are dealt with under a separate heading on p. 257 and under multiple births on p. 251. For international comparisons, see Section 7, pp. 282-283.

† A crude rate is one based on the total population.

The general trend in the national birth rate since 1924 is shown in the chart on p. 248 and since 1941 in Table 1. The annual rates declined gradually but steadily from 29.3 in 1921 to a record low of 20.1 in 1937, recovered sharply in the late 1930's and during World War II to 24.3 in 1945, and in the two years following the War rose to a postwar high of 28.9 in 1947. Between 1948 and 1959 the rate remained remarkably stable at between 27.1 and 28.5 but has since been declining and in 1963 reached a postwar low of 24.6. Part of this decline is attributable to the fact that the crude birth rate is based on *total* population, which now includes larger proportions of 'non-productive' population, as well as to the fact that the large, immediate postwar cohorts of married women are now approaching the end of their reproductive periods and have completed their families. Further, even if the annual number of births were to remain stable at 450,000 to 500,000—as it has for the past five to ten years—the net effect of an increase in population is a declining crude birth rate.

The rates in most provinces followed trends very similar to the national trend but showed some regional differences in recent years. Although all provinces had record high rates immediately following World War II, average birth rates in Ontario and the western provinces were higher during the 1951-55 period than during 1946-50 and those for Quebec and the Maritimes were lower than during 1946-50. In fact, Ontario, Alberta and British Columbia had record high crude birth rates during the 1956-59 period. However, most of the provinces recorded their lowest postwar rate in 1963.

It is often erroneously assumed that the Province of Quebec has not only the largest number of births annually but the highest birth rate in Canada. Since the late 1930's or early 1940's Newfoundland, in some years New Brunswick and, since 1953, Alberta have had higher birth rates than Quebec. Table 1, pp. 243-244, shows that six provinces—Newfoundland, Prince Edward Island, Alberta, New Brunswick, Saskatchewan and Nova Scotia, in that order, had higher crude rates than Quebec in 1963, followed by Ontario, Manitoba and British Columbia. However, since these crude rates are based on the *total* population they do not reflect the fertility of the women of reproductive ages in the different provinces or the number married within these reproductive ages. A more accurate measure of the true birth rate is one based on the number of married women between the ages of 15 and 45 (see pp. 252-253).

Also contrary to popular impression, since 1953 more babies were born each year in Ontario than in the Province of Quebec; in 1963, 155,089 babies were born to Ontario mothers as compared with 133,640 to Quebec mothers. Altogether, 465,767 children were born alive in Canada in 1963, 13,508 fewer than the record 479,275 born in 1959 and 3,926 fewer than the number born during 1962.

Sex of Live Births.—With rare exceptions, wherever birth statistics have been collected they have shown an excess of male over female births. No conclusive explanation of this excess has yet been given. Nevertheless it is so much an accepted statistical fact that a proper ratio of male to female births has become one of the criteria of complete registration. The number of males to every 1,000 females born in Canada has averaged around 1,057 since the middle 1930's. Provincial sex ratios vary much more widely because of the relatively small number of births involved—the smaller the total number of births, the greater the chance of wide sex-ratio variations from year to year. Another commonly acknowledged fact in many countries—although there is no generally accepted explanation for it—is that the male ratio appears to rise during or shortly after major wars. This seems to have happened in Canada between 1942 and 1945 when the ratio rose to an average of 1,064 during these four years as compared with averages of 1,054 between 1931-41 and 1,057 since 1946. In 1963, 1,053 male infants were born for every 1,000 females.

3.—Sex Ratios of Live Births, 1931-63

NOTE.—Figures for Newfoundland are included from 1949 and those for the Yukon and Northwest Territories from 1950.

Year	Males	Females	Males to 1,000 Females	Year	Males	Females	Males to 1,000 Females
No.	No.	No.	No.	No.	No.	No.	No.
1931.....	123,622	116,851	1,059	1957.....	241,073	228,020	1,057
1941.....	131,175	124,142	1,057	1958.....	241,675	228,443	1,058
1951.....	195,918	185,174	1,058	1959.....	246,073	233,202	1,055
1952.....	208,070	195,489	1,064	1960.....	246,029	232,522	1,058
1953.....	214,423	203,461	1,054	1961.....	244,403	231,297	1,057
1954.....	224,168	212,030	1,057	1962.....	240,870	228,823	1,053
1955.....	227,382	215,555	1,055	1963.....	238,865	226,902	1,053
1956.....	231,697	219,042	1,058				

Hospitalized Births.—In 1963 over 98 p.c. of all Canadian births occurred in hospital as compared with 88 p.c. seven years previously. Table 4 shows the rise in hospitalized births in each province since 1931. Before the initiation in 1958 of the federal-provincial hospital insurance programs—in which all provinces were participating by 1961—there were rather wide variations among the provinces in percentages of hospitalized births. Such variations were caused by the existence of prepaid or provincially sponsored hospital, maternity or medical care plans in some provinces, the unavailability of hospital facilities in others—particularly in remote rural areas—and preference for home delivery in some local areas. Although some variation still exists, the operation of the hospital insurance program has probably been responsible for the noticeable increases in hospitalized births in provinces that previously had lower proportions, for example in New Brunswick where the hospital insurance plan was put into effect on July 1, 1959, and in Quebec where the plan went into effect in 1961.

4.—Percentages of Live Births Hospitalized, by Province, 1931-63

Year	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada ¹
p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
1931....	11.2	19.0	12.1	7.3	38.2	43.6	32.5	47.8	65.0	..	..	26.8
1941....	32.7	50.4	30.8	17.6	67.5	73.6	63.2	77.1	87.3	..	..	48.9
1951....	88.3	87.2	70.7	53.0	93.1	93.1	95.2	93.6	97.3	87.4	32.8	79.1
1956....	95.2	93.9	84.7	71.2	97.3	95.8	97.6	96.6	98.3	87.7	44.6	88.4
1957....	96.7	95.1	86.8	75.6	97.9	96.4	98.3	97.5	98.5	91.3	38.6	90.2
1958....	99.0	96.2	88.5	79.3	98.0	96.8	98.5	97.7	98.5	92.6	42.1	91.7
1959....	99.2	98.0	93.5	82.3	98.6	97.4	98.5	98.0	98.6	88.6	45.7	93.1
1960....	99.4	98.6	97.7	85.2	99.0	98.0	99.0	98.5	98.8	93.3	51.7	94.6
1961....	99.3	98.9	99.0	92.3	99.3	98.2	98.8	98.6	98.9	92.8	57.1	96.9
1962....	99.6	99.2	99.4	95.0	99.4	98.5	98.8	98.7	98.9	95.4	55.9	97.8
1963....	99.8	99.3	99.4	96.5	99.6	98.2	99.1	98.9	99.1	93.0	64.3	98.3

¹ Excludes Newfoundland for which data are not available.

Births in Urban Centres.—Table 2, pp. 245-247, shows the number of births in 1963, as compared with the average for 1956-60, to mothers residing in each urban centre of 20,000 population or over. Because the populations of urban centres are not known for intercensal years, birth rates cannot be computed for the 1956-60 period or for 1963.

Illegitimacy.*—In 1963, over 5 p.c. of the live births in Canada were illegitimate. This percentage is low compared with that of many countries of the world but has been rising, particularly during the past five years.

5.—Illegitimate Live Births and Percentages of Total Live Births, by Province, 1941-63

Year	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada ¹
ILLEGITIMATE LIVE BIRTHS													
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Av. 1941-45	406	107	1,074	591	3,003	3,751	597	673	852	889	..	..	11,536
" 1946-50	441	152	1,244	754	3,382	4,256	766	914	1,202	1,516	..	..	14,375
" 1951-55	426	139	1,082	659	4,086	4,065	969	1,044	1,481	1,898	53	50	15,951
" 1956-60	587	139	1,201	687	4,675	4,891	1,166	1,194	1,941	2,505	72	102	19,160
1961.....	666	135	1,334	735	4,931	5,456	1,469	1,419	2,430	2,680	94	141	21,490
1962.....	625	133	1,394	739	5,195	5,813	1,558	1,384	2,572	2,804	91	135	22,443
1963.....	761	131	1,455	812	5,644	6,351	1,683	1,580	2,741	3,079	78	143	24,458
PERCENTAGES OF TOTAL LIVE BIRTHS													
Av. 1941-45	4.4	4.9	7.1	4.5	3.1	4.8	3.8	3.6	4.5	5.0	..	..	4.2
" 1946-50	3.6	5.3	6.9	4.5	2.9	4.0	4.0	4.2	4.9	5.9	..	..	4.1
" 1951-55	3.2	5.1	5.9	4.0	3.2	3.2	4.5	4.4	4.8	6.1	12.9	7.5	3.8
" 1956-60	3.9	5.2	6.3	4.1	3.3	3.2	5.2	5.0	5.3	6.4	14.2	10.8	4.1
1961.....	4.3	4.8	6.9	4.4	3.6	3.5	6.3	5.9	6.2	6.9	16.8	12.6	4.5
1962.....	4.1	4.7	7.2	4.5	3.8	3.7	6.8	5.9	6.6	7.4	16.6	11.9	4.8
1963.....	4.9	4.4	7.7	5.1	4.2	4.1	7.4	6.7	7.1	8.2	15.6	12.3	5.3

¹ Figures for Newfoundland are included from 1949, and those for the Yukon and Northwest Territories from 1951.

Multiple Births.—Approximately one confinement in 90 in Canada results in the birth of more than one child as compared with one in 85 several years ago—in other words, the chances of a confinement resulting in the birth of more than one child are fewer now than formerly. The chance of a mother delivering twins is about one in 90, triplets, one in about 10,000 and quadruplets, one in about 750,000 or more. Two sets of quadruplets were born in Canada during 1960—the first since 1957—and one set in each of 1962 and 1963. In 1963 a total of 466,537 mothers bore a total of 471,544 infants, of which 465,767, or almost 99 out of every 100, were born alive.

Other facts illustrated by Table 6 are that the proportion of stillbirths is higher among multiple than among single births, about twice as high for twins and between three and five times as high for triplets.

* The term "illegitimate", as used here, does not refer to *all* births conceived out of wedlock but is necessarily restricted to those in which parents reported themselves as not having been married to each other at the time of birth or registration and, in Ontario, to those in which the marital status of the mother was reported as "single" at the time of birth or registration.

6.—Single and Multiple Births, Live and Stillborn,¹ 1960-63

Confinements and Births	Numbers				Percentages			
	1960	1961	1962 ²	1963 ³	1960	1961	1962	1963
Confinements.....	479,786	476,547	470,345	466,537	100.0	100.0	100.0	100.0
Single.....	474,613	471,410	465,136	461,569	98.9	98.9	98.9	98.9
Twin.....	5,112	5,102	5,159	4,930	1.1	1.1	1.1	1.1
Triplet.....	59	35	49	37	--	--	--	--
Quadruplet.....	2	—	1	1	--	—	--	--
Births.....	485,022	481,719	475,605	471,544	100.0	100.0	100.0	100.0
Single—								
Live.....	468,469	465,715	459,539	456,109	98.7	98.8	98.8	98.8
Stillborn.....	6,144	5,695	5,597	5,460	1.3	1.2	1.2	1.2
Twin—								
Live.....	9,907	9,885	10,006	9,553	96.9	96.9	97.0	96.9
Stillborn.....	317	319	312	307	3.1	3.1	3.0	3.1
Triplet—								
Live.....	168	100	144	104	94.9	95.2	98.0	93.7
Stillborn.....	9	5	3	7	5.1	4.8	2.0	6.3
Quadruplet—								
Live.....	7	—	4	1	87.5	—	100.0	25.0
Stillborn.....	1	—	—	3	12.5	—	—	75.0
Totals, Live Births.....	478,551	475,700	469,693	465,767	98.7	98.8	98.8	98.8
Totals, Stillborn.....	6,471	6,019	5,912	5,777	1.3	1.2	1.2	1.2

¹ Unless otherwise indicated, includes only foetuses of 28 or more full weeks gestation.

stillbirths of 20-27 weeks gestation.

² Includes 45 stillbirths of 20-27 weeks gestation.

³ Includes 30

Fertility Rates.—The sex and age composition of a population is obviously an important factor in determining crude birth, marriage and death rates. Since almost all children born each year are to women between the ages of 15 and 45, variations in the proportion of women of these ages to the total population will cause variations in the crude birth rate of different countries—or of different regions within a country—even though the actual rates of reproduction or *fertility* of the women in these age groups in each country or region are identical.

A more accurate measure of the fertility of a population would be one based on the number of women of reproductive age, that is those 'able' to bear children, and a still more accurate measure would be one based on the number within this group that are married, that is those 'eligible', as it were, to bear children. Each type of rate has its uses, depending on the comparisons required. The two types—generally referred to as *crude fertility rates*—are compared in Table 7, and indicate the variations in each type as between provinces and the provincial trends over the years 1960-63.

The number of infants born in relation to every 1,000 women in the population between the ages of 15 and 45 has been declining for the past few years, dropping from 130 in 1960

to 121 in 1963. However, the rates varied among the provinces from 113 to 183 during the past four years; Newfoundland, Prince Edward Island, Alberta, Saskatchewan and New Brunswick had the highest rates and British Columbia, Quebec, Ontario and Manitoba, in that order, the lowest. On the other hand, the average annual number of infants born to every 1,000 *married* women in the country as a whole dropped from 184 to 173 during the same period. According to this measure, the five eastern provinces and Saskatchewan had, on the whole, the highest rates.

7.—Crude Fertility Rates, by Province, 1960-63

Province or Territory	Rates per 1,000 Total Women 15-44 Years of Age ¹				Rates per 1,000 Married Women 15-44 Years of Age ¹			
	1960	1961	1962	1963	1960	1961	1962	1963
Newfoundland.....	181.7	183.5	171.4	169.9	271.9	275.8	262.1	262.2
Prince Edward Island.....	148.6	154.6	150.0	155.2	222.9	232.0	228.4	245.0
Nova Scotia.....	134.6	135.3	134.5	129.4	190.0	190.8	191.1	185.0
New Brunswick.....	144.6	146.0	142.2	134.0	217.0	217.1	213.4	203.2
Quebec.....	124.8	121.8	117.3	113.6	198.6	194.0	187.6	182.5
Ontario.....	125.9	123.2	120.7	118.3	168.1	164.5	161.6	159.3
Manitoba.....	128.5	127.8	124.7	121.9	175.6	174.2	170.3	167.2
Saskatchewan.....	137.3	136.6	133.3	135.4	187.5	185.8	183.4	187.7
Alberta.....	148.0	143.8	140.0	135.9	193.5	186.3	181.5	176.7
British Columbia.....	126.4	120.6	117.6	113.1	163.0	155.7	153.1	147.8
Yukon Territory.....	199.3	187.2	182.3	172.1	..	207.2	..	..
Northwest Territories.....	266.8	253.6	252.0	263.9	..	320.8	..	..
Canada².....	130.2	127.6	124.1	121.0	183.9	180.2	176.1	172.6

¹ Since the number of births to women over 44 is quite small, rates are here restricted to women under 45.

² Excludes the Yukon and Northwest Territories.

The rates shown in Table 7 are *crude* in the sense that they do not take into account differences in fertility in the component age periods within the female reproductive life span, nor the proportions of married women in each age period. It is therefore conventional practice to calculate what are termed *age-specific fertility rates*, i.e., the number of infants born annually to every 1,000 women in *each* of the reproductive age periods, again either for all women or for those who are married. Table 8 provides these two sets of rates—the former for 1941 and 1951-63 and the latter for 1962 and 1963 in addition to the census years from 1941 to 1961.

Another measure of fertility in a country is obtainable from what is conventionally referred to as a *gross reproduction rate*. The gross reproduction rates shown in Table 8 indicate the average number of female children born each year to each woman living through the child-bearing ages. In other words, this figure represents the average number of females that *would* be born to each woman who lived to age 50 if the fertility rate of the given year remained unchanged during the whole of her child-bearing period. A gross

reproduction rate of 1.000 indicates that, on the basis of current fertility and without making any allowance for mortality among mothers during their child-bearing years, the present generation of child-bearing women would exactly maintain itself. Canada has always had one of the highest gross reproduction rates among the industrialized countries of the world. Even during the period of low birth rates in the 1930's the rate varied between 1.300 and 1.500 and since World War II has ranged from 1.640 to a record high of 1.915 in 1959; in 1963 the rate stood at 1.800, still 80 p.c. more than the number required for the population to replace itself. With minor exceptions, provincial reproduction rates are also well above the replacement level.

Table 8 indicates that in 1963, considering all women whether married or not, women in their 20's were the most reproductive, as might be expected; on the average, for every 1,000 women between the ages of 20 and 25, 228 infants were born during that year or, expressed another way, about one woman out of four in that age group gave birth to a live-born infant. This compares with a rate of almost 213 for women in the age group 25-29, which is closer to one in five. However, among *married* women, teen-age mothers have consistently had the highest fertility, with one out of two bearing a child each year on the average, while about 36 out of every 100 married women in their early 20's had a child every year as compared with about one in four for women in their late 20's.

8.—Age-Specific Fertility Rates per 1,000 Women, by Age Group, 1941, and 1951-63

(Exclusive of Newfoundland for all years and the Yukon and Northwest Territories for 1941)

Year	Age Group							Gross Reproduction Rate
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
TOTAL WOMEN								
1941.....	30.7	138.4	159.8	122.3	80.0	31.6	3.7	1.377
1951.....	48.1	188.7	198.8	144.5	86.5	30.9	3.1	1.701
1952.....	50.4	201.0	205.2	150.7	87.4	30.7	2.8	1.763
1953.....	52.0	208.2	208.4	153.2	88.1	31.2	2.9	1.812
1954.....	54.3	217.4	213.2	156.5	88.5	32.4	3.2	1.861
1955.....	54.2	218.3	215.1	153.8	89.8	32.3	2.9	1.863
1956.....	55.9	222.2	220.1	150.3	89.6	30.8	2.9	1.874
1957.....	60.2	227.1	224.1	149.4	90.7	30.7	2.8	1.907
1958.....	59.2	226.5	223.3	147.9	87.6	28.9	2.7	1.886
1959.....	60.4	233.8	226.7	147.7	87.3	28.5	2.7	1.915
1960.....	59.8	233.5	224.4	146.2	84.2	28.5	2.4	1.893
1961.....	58.2	233.6	219.2	144.9	81.1	28.5	2.4	1.868
1962.....	55.3	232.4	215.6	143.4	77.0	27.5	2.1	1.836
1963.....	53.5	228.2	212.5	140.9	75.7	25.9	2.1	1.800
MARRIED WOMEN								
1941.....	453.1	340.2	237.8	158.3	99.1	38.9	4.5	...
1951.....	498.5	350.4	248.1	168.7	100.6	36.6	3.7	...
1956.....	551.5	381.7	265.5	169.8	101.0	35.6	3.4	...
1961.....	541.2	374.4	255.6	161.4	89.9	32.1	2.8	...
1962.....	544.7	367.8	253.2	159.1	84.9	30.8	2.5	...
1963.....	547.4	356.8	251.9	155.8	83.1	28.8	2.4	...

Age of Parents.—Age of parents is an important variable in any analysis of birth statistics. The distribution of legitimate and illegitimate live births by age of the parents is given in Table 9.

Over 7 p.c. of the legitimate children born in 1963 were born to mothers under 20 years of age, in over one third of the births the mother was under 25 years, and in almost two thirds, under 30 years; in almost one fifth of the births the father was under 25 years of age, and in over 48 p.c. of all births the father was under 30 years. On the other hand, almost two fifths of the illegitimate infants born were born to mothers under 20 years of age and over an additional one third to mothers under 25 years. The average age of all the married mothers to whom a child was born in 1963 was 27.9, and of the fathers 31.2 years; ten years ago the average ages of the parents were 28.4 and 31.9, and thirty years ago 29.3 and 33.7, respectively.

The median age of unmarried mothers who bore a live-born child in 1963 was 21.2; that is, half of the mothers of the 23,697 'illegitimate' children delivered in 1963 were under 21.3 years of age.

9.—Live Births, by Age of Parents, 1963

(Exclusive of Newfoundland)

Age Group	Legitimate				Illegitimate	
	Fathers		Mothers		Mothers	
	No.	p.c.	No.	p.c.	No.	p.c.
Under 20 years.....	4,777	1.1	31,575	7.4	8,943	38.7
Under 15 years.....	—	—	34	—	155	0.7
15 years.....	1	—	337	0.1	535	2.3
16 ".....	30	—	1,754	0.4	1,343	5.8
17 ".....	238	0.1	4,566	1.1	1,993	8.6
18 ".....	1,145	0.3	9,282	2.2	2,346	10.1
19 ".....	3,363	0.8	15,602	3.7	2,571	11.1
20—24 ".....	77,704	18.2	131,566	30.8	8,055	34.8
25—29 ".....	125,791	29.5	118,534	27.8	3,020	13.1
30—34 ".....	105,419	24.7	82,524	19.3	1,778	7.7
35—39 ".....	64,626	15.2	46,650	10.9	1,015	4.4
40—44 ".....	31,415	7.4	14,668	3.4	291	1.3
45—49 ".....	11,476	2.7	1,014	0.2	19	0.1
50 years or over.....	4,767	1.1	11	—	—	—
Totals, Stated Ages.....	425,975	100.0	426,542	100.0	23,121	100.0
Ages not stated.....	652	...	85	...	576	...
Totals, All Ages.....	426,627	100.0	426,627	100.0	23,697	100.0
Average ages.....yr.	31.2		27.9		23.4	
Median ages ¹"	30.2		26.9		21.2	

¹ The age above and below which half of the births occurred.

Order of Birth.—Table 10 shows the order of birth of all live-born infants in 1963 according to the age of the mother. As would be expected, 29,824, or almost three fourths of the 40,518 infants born to mothers under 20 years of age, were first-born, whereas almost six out of every ten of the children born to mothers of 20-24 years were second or later children. This is a reflection of the earlier marriages and heavy fertility of recent years. In 1963, 189 infants were born to mothers who had not yet reached their 15th birthday.

10.—Order of Birth of Live-Born Children, by Age of Mother, 1963

(Exclusive of Newfoundland)

Order of Birth of Child	Age of Mother										Per-centage of Total
	Under 15	15-19	20-24	25-29	30-34	35-39	40-44	45 or Over	Age Not Stated	All Ages	
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	
1st child.....	188	29,636	56,974	20,905	7,145	2,752	647	40	546	118,833	26.4
2nd ".....	1	8,757	44,891	31,533	13,304	4,710	992	49	37	104,274	23.2
3rd ".....	—	1,663	23,438	29,108	17,655	7,111	1,534	43	15	80,567	17.9
4th ".....	—	245	9,635	18,657	15,481	7,704	1,854	82	8	53,666	11.9
5th ".....	—	25	3,286	10,689	10,909	6,484	1,886	107	10	33,396	7.4
6th ".....	—	3	1,044	5,561	7,323	5,150	1,593	105	5	20,784	4.6
7th ".....	—	—	257	2,900	4,742	3,851	1,342	86	3	13,181	2.9
8th ".....	—	—	68	1,285	3,189	2,884	1,094	83	3	8,606	1.9
9th ".....	—	—	22	573	2,009	2,135	897	77	1	5,714	1.3
10th ".....	—	—	4	240	1,221	1,664	733	76	3	3,941	0.9
11th ".....	—	—	2	66	696	1,127	591	75	1	2,558	0.6
12th ".....	—	—	—	25	366	836	526	49	—	1,802	0.4
13th ".....	—	—	—	5	143	523	371	50	2	1,094	0.2
14th ".....	—	—	—	6	82	350	324	28	—	790	0.2
15th ".....	—	—	—	1	23	187	225	40	—	476	0.1
16th ".....	—	—	—	—	9	94	150	19	—	272	0.1
17th ".....	—	—	—	—	2	57	82	15	—	156	—
18th ".....	—	—	—	—	1	24	56	11	—	92	—
19th ".....	—	—	—	—	1	13	25	4	—	43	—
20th or over.....	—	—	—	—	1	9	35	5	—	50	—
Not stated.....	—	—	—	—	—	—	2	—	27	29	—
Totals.....	189	40,329	139,621	121,554	84,302	47,665	14,959	1,044	661	450,324	100.0

Table 11 summarizes the pattern of family formation since 1951.

11.—Percentage Distribution of Legitimate Live Births, by Order of Birth, 1951-63

(Exclusive of Newfoundland)

Year	1st Child	2nd Child	3rd Child	4th and Later Children	Total
1951.....	26.7	25.8	17.6	29.9	100.0
1952.....	26.9	24.8	17.9	30.3	100.0
1953.....	26.5	25.0	18.0	30.6	100.0
1954.....	26.1	24.6	18.0	31.2	100.0
1955.....	25.5	24.4	18.2	31.9	100.0
1956.....	25.2	24.3	18.3	32.2	100.0
1957.....	25.6	23.9	18.3	32.2	100.0
1958.....	25.4	23.8	18.2	32.6	100.0
1959.....	24.8	24.0	18.2	32.9	100.0
1960.....	24.5	23.8	18.5	33.1	100.0
1961.....	24.1	23.6	18.5	33.8	100.0
1962.....	24.0	23.7	18.4	33.9	100.0
1963.....	24.3	23.6	18.5	33.6	100.0

Birthweight.—Excluding Newfoundland, information on birthweight of newborn infants has recently become available from provincial records of birth. These data, in addition to their usefulness in calculating the average weights of newborn infants, are of importance from the public health and medical points of view in throwing light on the number of immaturely developed foetuses that are delivered alive. According to criteria recommended by the World Health Organization, infants of 5 lb. or less at birth are considered 'immature' and hence exposed to a much greater risk of dying than those over this weight. Weight at birth depends on a host of maternal factors, most of which are not included in the birth records, but some information is available on the age of the mother

and length of pregnancy before delivery.* Analysis of this information shows that (1) there are variations in average weight according to the age of the mother, (2) women under 20 and over 35 tend to produce higher proportions of immature infants, so that the late 20's and early 30's would appear to be the ideal ages for motherhood, and (3) practically all infants of less than 28 weeks gestation are delivered 'immature' according to the definition. The average single male infant born at full term weighs about 7½ lb. at birth and the average female about 4 oz. less.

Stillbirths.†—The 5,732 stillbirths in 1963 represented a ratio of 12.3 for every 1,000 foetuses born alive. As is evident from Table 12, the stillbirth rate has been decreasing steadily and has been cut by more than half over the past quarter-century. Although the variations between provincial rates have never been wide, rates in some provinces have been reduced more than in others. The stillbirth rate among unmarried mothers has been consistently higher than that among married mothers but the difference is narrowing.

* Obtainable from the Vital Statistics Section, DBS.

† Stillbirth figures given here refer only to foetuses of 28 or more weeks gestation which "showed no sign of life". Up to the end of 1963, only foetuses delivered after at least 28 weeks pregnancy which showed no sign of life were required to be registered with the provincial authorities; as of Jan. 1, 1964, all provinces (except Newfoundland) provide for the compulsory registration of all stillbirths of 20 or more weeks gestation, a 'stillbirth' being defined as "the complete expulsion or extraction from its mother, after at least 20 weeks pregnancy, of a product of conception in which, after such expulsion or extraction, there is no breathing, beating of the heart, pulsation of the umbilical cord, or unmistakable movement of voluntary muscle". Available data for stillbirths of 20-27 weeks pregnancy for those provinces having this legislation in effect before 1963 are obtainable from the Vital Statistics Section, DBS.

12.—Stillbirths and Rates per 1,000 Live Births, by Province, 1941-63

Year	Born to All Mothers													Born to Unmarried Mothers ¹	
	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N. W. T.	Canada ²	No.	P.C. of Total
Av. 1941-45 " 1946-50 " 1951-55 " 1956-60 1961..... 1962..... 1963.....	NUMBERS (28 WEEKS OR MORE GESTATION)														
	191	50	388	295	2,786	1,988	345	348	327	309	1	6	6,845	355	5.20
	215	54	358	320	2,898	2,020	349	350	385	352	2	8	7,187	343	4.85
	222	52	337	291	2,705	2,017	336	313	425	374	6	11	7,088	316	4.60
	274	46	304	267	2,446	1,992	301	262	388	418	5	12	6,714	291	4.51
	281	46	300	222	1,929	1,870	301	266	372	412	4	16	6,019	303	5.28
	249	58	277	238	1,824	1,925	276	248	388	377	3	19	5,882	315	5.59
	265	52	240	236	1,800	1,873	269	243	367	365	5	17	5,732	323	5.91
	RATES													Rate per 1,000 Illegitimate Live Births ¹	
	Av. 1941-45	20.5	22.8	25.6	22.6	28.5	25.6	21.8	18.9	17.4	17.5	11.4	15.7	24.7	30.8
" 1946-50	17.4	18.9	19.9	19.0	25.1	19.2	18.1	16.0	15.9	13.6	8.7	12.5	20.2	24.2	
" 1951-55	17.0	19.0	18.4	17.7	21.0	15.6	15.7	13.3	13.7	11.9	14.1	16.5	17.0	20.3	
" 1956-60	18.3	17.1	15.9	16.1	17.5	13.0	13.4	10.9	10.5	10.7	10.7	12.3	14.3	15.6	
1961.....	18.0	16.2	15.5	13.4	14.1	11.9	12.9	11.1	9.6	10.7	7.2	14.3	12.7	14.6	
1962.....	16.5	20.7	14.3	14.5	13.5	12.3	12.0	10.6	10.0	9.9	5.5	16.8	12.5	14.4	
1963.....	17.2	17.6	12.6	15.0	13.5	12.1	11.8	10.3	9.5	9.7	10.0	14.6	12.3	13.6	

¹ Exclusive of Newfoundland for all years and the Yukon and Northwest Territories for 1941-50. for Newfoundland are included from 1949.

² Figures

Table 13 illustrates the fact that the risk of having a stillborn child increases with the age of the mother. Although stillbirth rates for mothers of all ages have been declining, they continue to be three to four times as high for mothers over 40 years of age as for mothers under 30. The average age of mothers who bore stillborn children in 1963 was 29.9 years; the median age was 29.3. The average age of mothers who bore legitimate live-born children was 27.9 and of those who bore illegitimate live-born offspring was 23.4.

13.—Stillbirths and Ratios per 1,000 Live Births, by Age of Mother, 1963

(Exclusive of Newfoundland)

Age Group of Mother	Live Births	Stillbirths	Stillbirth Ratio per 1,000 Live Births
	No.	No.	No.
Under 20 years.....	40,518	403	9.9
20—24 “.....	139,621	1,240	8.9
25—29 “.....	121,554	1,247	10.3
30—34 “.....	84,302	1,094	13.0
35—39 “.....	47,665	958	20.1
40—44 “.....	14,959	464	31.0
45—49 “.....	1,033	40	38.7
50 years or over.....	11	1	90.9
Ages not stated.....	661	20	...
Totals, All Ages.....	450,324	5,467	12.1
Average age of mothers.....yrs.	27.7	29.9	...
Median age of mothers ¹“	26.7	29.3	...

¹ The age above and below which half of the stillbirths occurred.

Table 14 shows the causes of stillbirths in 1963.

14.—Stillbirths, by Cause, 1963

International List No.	Cause	Males	Females	Total
		No.	No.	No.
Y 30	Chronic disease in mother.....	72	66	138
Y 31	Acute disease in mother.....	16	12	28
Y 32	Diseases and conditions of pregnancy and childbirth.....	247	210	457
Y 33	Absorption of toxic substance from mother.....	3	—	3
Y 34	Difficulties in labour.....	166	143	309
Y 35	Other causes in mother.....	33	35	68
Y 36	Placental and cord conditions.....	1,188	1,000	2,188
Y 37	Birth injury.....	33	20	53
Y 38	Congenital malformation of foetus.....	309	432	741
Y 39	Diseases of foetus and ill-defined causes.....	885	862	1,747
	All Causes.....	2,952	2,780	5,732

Section 3.—Deaths*

No official crude† death rates are available prior to 1921, but some indication of these may be obtained from studies of the early censuses as follows:—

Intercensal Period	Estimated Average Annual Crude Death Rate (per 1,000 Population)	Intercensal Period	Estimated Average Annual Crude Death Rate (per 1,000 Population)
1851–61.....	22	1891–1901.....	16
1861–71.....	21	1901–11.....	13
1871–81.....	19	1911–21.....	13
1881–91.....	18		

*For international comparisons, see Section 7, pp. 282–283.

† A crude rate is one based on the total population.

As is typical of pioneer populations, Canada had a high death rate in the mid-1850's when the country was still in the throes of pioneer settlement. The crude death rate during that period is estimated as between 22 and 25. Although no data are available, it is assumed that, while mortality at all ages was high, the rate among infants, children and young adults must have been particularly so since even in the 1920's mortality in these ages was still quite high. With the gradual increase in population density and in urbanization and improved sanitation and medical services, the crude rate was halved during the 80 years between 1851 and 1930, dropping from about 22 to 11. It declined steadily to slightly over 8 in the late 1950's, dropped to a low of 7.7 in 1961 and 1962, and was 7.8 in 1963. This is one of the lowest crude death rates in the world.

Table 1, pp. 243-244, shows the trends since 1941 in the provinces and territories. The generally low rates in the Prairie Provinces are partly the result of their younger average population; the uniformly higher rate in British Columbia is attributable mainly to a high proportion of people in the older age groups.

Subsection 1.—General Mortality

Age and Sex Distribution of Deaths.—During the period of national vital statistics (1921 to date), the mortality pattern at all ages has been steeply downward. Of major significance in lowering the over-all death rate were the reductions in infant mortality, in childhood death rates and in those of young adults. In 1931, over 19 p.c. of all male deaths occurred among persons of five to 45 years of age; in 1963 only a little over 10 p.c. took place in this age group. Among females in the same age group the proportion dropped from just under 22 p.c. to 7.5 p.c.

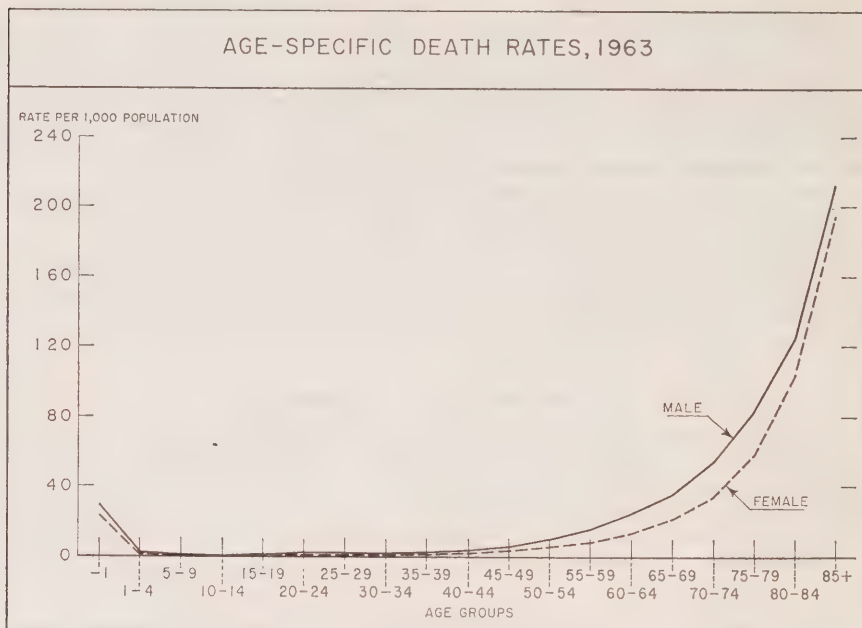
Tables 15 and 16 illustrate the very large reductions in death rates that have taken place since 1931 in each age group of the population. By far the greatest reductions have been among the young of both sexes. However, even though the rates for females at every age have always been consistently lower than those for males, female death rates have been declining faster and the differences are gradually widening. Between 1931 and 1963 the rates for all females dropped by 31 p.c. as compared with only 14 p.c. for males.

15.—Percentage Change in Death Rates for Each Age Group, 1931 to 1963

Age Group	Males	Females	Age Group	Males	Females
Under 1 year.....	-68.6	-69.2	45 — 49 years.....	-20.8	-50.0
1 — 4 years.....	-82.4	-85.2	50 — 54 ".....	-12.1	-43.3
5 — 9 ".....	-68.2	-76.5	55 — 59 ".....	-0.0	-41.9
10 — 14 ".....	-66.7	-80.0	60 — 64 ".....	+ 5.2	-36.2
15 — 19 ".....	-56.0	-72.7	65 — 69 ".....	+ 1.4	-31.0
20 — 24 ".....	-43.8	-81.2	70 — 74 ".....	- 1.6	-30.3
25 — 29 ".....	-52.9	-81.6	75 — 79 ".....	- 5.6	-29.8
30 — 34 ".....	-54.3	-78.6	80 — 84 ".....	- 6.8	-18.7
35 — 39 ".....	-47.6	-72.9	85 years or over.....	- 7.1	- 8.0
40 — 44 ".....	-37.0	-58.0			
			All Ages.....	-14.3	-31.2

Despite the very considerable reduction that has taken place in infant mortality, more deaths still occur in the first year of life than in any other single year. Of the total deaths occurring in 1931, almost one quarter were of children under five years of age and more than three quarters of those were of children under one year of age; of the deaths occurring in 1963, almost 10 p.c. were of children under five years and of those about 86 p.c. were under one year. Most of the reduction took place among children over the age of one month but there was also a notable decrease in all childhood ages up to five years.

The reductions in the mortality rates in early and middle years of life have had the effect of increasing the number of people in the older age groups and raising the average age



at death. In 1931 the average age at death of males was 43.1 years and of females 44.8 years; by 1963 this had advanced to 60.5 years and 64.1 years, respectively. On the other hand, the median age increased during the same period from 50.8 to 68.2 for males, and from 52.1 to 72.9 for females. This means that *half* of all the females who died during 1963 were over 73 years of age, while for males half had reached 68 years. Since 1931 the gains in median age were 17.4 years for males and 20.8 for females.

16.—Distribution of Deaths by Age and Sex, 1931, 1941, 1951, 1961 and 1963

Age Group	1931 ¹		1941 ¹		1951		1961		1963	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
NUMBERS										
Under 1 year.....	11,667	8,693	8,788	6,448	8,375	6,298	7,447	5,493	7,079	5,191
1 — 4 years.....	2,844	2,533	1,878	1,566	1,421	1,151	1,154	844	1,143	819
5 — 9 ".....	1,241	963	888	670	711	466	672	405	726	471
10 — 14 ".....	821	806	787	536	461	284	527	278	537	276
15 — 19 ".....	1,311	1,132	1,118	823	721	457	840	322	917	442
20 — 24 ".....	1,502	1,453	1,332	1,039	1,009	549	969	342	1,114	392
25 — 29 ".....	1,388	1,414	1,317	1,173	988	660	895	418	926	407
30 — 34 ".....	1,301	1,432	1,211	1,148	1,070	778	1,041	562	1,030	543
35 — 39 ".....	1,512	1,574	1,497	1,242	1,281	1,015	1,422	880	1,440	849
40 — 44 ".....	1,888	1,493	1,744	1,464	1,756	1,266	1,916	1,099	1,981	1,213
45 — 49 ".....	2,314	1,738	2,416	1,817	2,463	1,607	2,993	1,617	3,015	1,729
50 — 54 ".....	2,855	1,993	3,355	2,227	3,525	2,083	4,242	2,237	4,391	2,312
55 — 59 ".....	3,057	2,246	4,394	2,851	4,741	2,832	5,494	2,749	5,906	2,894
60 — 64 ".....	3,583	2,855	5,288	3,483	6,465	3,902	7,028	3,725	7,355	3,997
65 — 69 ".....	4,249	3,348	6,057	4,412	8,007	5,119	8,545	5,304	8,663	5,314
70 — 74 ".....	4,867	4,073	6,495	4,981	8,748	6,439	10,582	7,058	10,497	7,224
75 — 79 ".....	4,368	4,029	6,021	5,461	8,254	6,904	10,970	8,290	11,448	8,806
80 — 84 ".....	3,206	3,215	5,020	4,906	6,232	6,130	8,635	7,871	9,388	8,753
85 years or over.....	2,555	2,998	3,846	4,540	5,336	6,319	7,337	8,782	8,345	9,834
Totals, All Ages.....	56,529	47,988	63,852	50,787	71,564	54,259	82,709	58,276	85,901	61,466

¹ Excludes the Yukon and Northwest Territories.

16.—Distribution of Deaths by Age and Sex, 1931, 1941, 1951, 1961 and 1963—concluded

Age Group	1931 ¹		1941 ¹		1951		1961		1963	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
PERCENTAGES										
Under 1 year.....	20.6	18.1	13.8	12.7	11.7	11.6	9.0	9.4	8.2	8.4
1 — 4 years.....	5.0	5.3	2.9	3.1	2.0	2.1	1.4	1.4	1.3	1.3
5 — 9 ".....	2.2	2.0	1.4	1.3	1.0	0.9	0.8	0.7	0.8	0.8
10 — 14 ".....	1.5	1.7	1.2	1.1	0.6	0.5	0.6	0.5	0.6	0.4
15 — 19 ".....	2.3	2.4	1.8	1.6	1.0	0.8	1.0	0.6	1.1	0.7
20 — 24 ".....	2.7	3.0	2.1	2.0	1.4	1.0	1.2	0.6	1.3	0.6
25 — 29 ".....	2.5	2.9	2.1	2.3	1.4	1.2	1.1	0.7	1.1	0.7
30 — 34 ".....	2.3	3.0	1.9	2.3	1.5	1.4	1.3	1.0	1.2	0.9
35 — 39 ".....	2.7	3.3	2.3	2.4	1.8	1.9	1.7	1.5	1.7	1.4
40 — 44 ".....	3.3	3.1	2.7	2.9	2.5	2.3	2.3	1.9	2.3	2.0
45 — 49 ".....	4.1	3.6	3.8	3.6	3.4	3.0	3.6	2.8	3.5	2.8
50 — 54 ".....	5.0	4.2	5.3	4.4	4.9	3.8	5.1	3.8	5.1	3.8
55 — 59 ".....	5.4	4.7	6.9	5.6	6.6	5.2	6.6	4.7	6.9	4.7
60 — 64 ".....	6.3	5.9	8.3	6.9	9.0	7.2	8.5	6.4	8.6	6.5
65 — 69 ".....	7.5	7.0	9.5	8.7	11.2	9.4	10.3	9.1	10.1	8.6
70 — 74 ".....	8.6	8.5	10.2	9.8	12.2	11.9	12.8	12.1	12.2	11.8
75 — 79 ".....	7.7	8.4	10.1	10.7	11.5	12.7	13.3	14.2	13.3	14.3
80 — 84 ".....	5.7	6.7	7.9	9.7	8.7	11.3	10.4	13.5	10.9	14.2
85 years or over.....	4.5	6.2	6.0	8.9	7.5	11.6	8.9	15.1	9.7	16.0
Totals, All Ages.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
RATES PER 1,000 POPULATION										
Under 1 year.....	94.4	74.4	67.0	51.9	42.7	34.0	30.5	23.7	29.6	22.9
1 — 4 years.....	6.8	6.1	4.7	4.0	2.1	1.8	1.3	1.0	1.2	0.9
5 — 9 ".....	2.2	1.7	1.7	1.3	1.0	0.7	0.6	0.4	0.7	0.4
10 — 14 ".....	1.5	1.5	1.4	1.0	0.8	0.5	0.6	0.3	0.5	0.3
15 — 19 ".....	2.5	2.2	2.0	1.5	1.4	0.9	1.2	0.5	1.1	0.6
20 — 24 ".....	3.2	3.2	2.6	2.0	1.9	1.0	1.7	0.6	1.8	0.6
25 — 29 ".....	3.4	3.8	2.7	2.5	1.8	1.1	1.5	0.7	1.6	0.7
30 — 34 ".....	3.5	4.2	2.8	2.8	2.1	1.5	1.6	0.9	1.6	0.9
35 — 39 ".....	4.2	4.8	3.8	3.4	2.5	2.0	2.3	1.4	2.2	1.3
40 — 44 ".....	5.4	5.0	5.0	4.5	3.9	3.0	3.4	2.0	3.4	2.1
45 — 49 ".....	7.2	6.6	7.3	6.0	6.4	4.5	5.8	3.2	5.7	3.3
50 — 54 ".....	10.7	9.0	10.6	8.1	10.4	6.5	9.6	5.3	9.4	5.1
55 — 59 ".....	15.4	13.4	16.0	12.3	16.2	10.2	15.2	8.0	15.4	7.9
60 — 64 ".....	22.9	20.7	24.2	18.5	24.5	16.1	24.0	12.8	24.1	13.2
65 — 69 ".....	35.2	30.3	37.3	30.4	35.1	24.9	35.7	21.4	35.7	20.9
70 — 74 ".....	55.0	49.1	58.5	47.0	54.5	41.6	54.0	34.2	54.1	34.2
75 — 79 ".....	87.4	82.9	95.7	79.7	87.6	73.3	81.8	59.2	82.5	58.2
80 — 84 ".....	134.1	127.1	147.6	131.2	135.5	120.7	125.1	101.2	125.0	103.3
85 years or over.....	228.1	212.6	241.9	229.3	235.1	212.0	208.9	192.2	211.8	195.5
Totals, All Ages.....	10.5	9.6	10.8	9.1	10.1	7.8	9.0	6.5	9.0	6.6
Average age at death yrs.	43.1	44.8	51.5	53.4	56.3	58.7	59.7	63.1	60.5	64.1
Median age at death ² "	50.8	52.1	61.2	63.6	65.5	68.8	67.9	72.2	68.2	72.9

¹ Excludes the Yukon and Northwest Territories.² The age above and below which half of the total number of annual deaths occurred.

Table 17 indicates the variations from province to province in average and median ages at death; these, in turn, are dependent in large measure on the age distribution of the population as well as on varying mortality rates at each age. For example, in Newfoundland a high mortality rate among infants and young children reduces the average and median age for that province, while the reverse is the case in British Columbia and several other provinces with older populations.

17. -Average and Median Ages at Death, by Sex and Province, 1963

Province or Territory	Average Age at Death		Median Age at Death ¹	
	Males	Females	Males	Females
	yrs.	yrs.	yrs.	yrs.
Newfoundland.....	51.0	57.4	62.8	69.8
Prince Edward Island.....	63.2	70.8	71.6	78.3
Nova Scotia.....	61.6	66.7	69.4	74.9
New Brunswick.....	59.9	63.9	69.1	73.7
Quebec.....	56.6	60.1	64.3	69.4
Ontario.....	61.8	66.5	68.3	73.9
Manitoba.....	63.8	65.4	71.6	73.7
Saskatchewan.....	63.4	64.4	72.3	74.1
Alberta.....	60.0	61.7	69.2	72.0
British Columbia.....	64.7	67.3	72.2	75.3
Yukon Territory.....	47.6	36.2	...	...
Northwest Territories.....	20.2	25.1	...	...
Canada.....	60.5	64.1	68.2	72.9

¹ The age above and below which half of the total number of annual deaths occurred.

Deaths in Urban Centres.—Table 2, pp. 245-247, shows the numbers of deaths in urban centres of 20,000 population or over in 1963 and the average numbers for the period 1956-60; death rates for urban centres cannot be computed for these years since their populations are not known for intercensal periods.

Causes of Death.—Table 18 summarizes the most recent figures for deaths and death rates in Canada grouped according to the International Abbreviated List of 50 Causes. Over 80 p.c. of the deaths are caused by diseases of the heart and arteries, cancer, accidents, diseases of early infancy, the respiratory diseases, and nephritis. Because of the rise in the average age at death during the past thirty years, the proportion of deaths from causes that affect older people has increased. Cancer and diseases of the cardiovascular-renal systems now account for a larger proportion of all deaths. By the same token, deaths from causes that mainly affect children and young adults have declined.

18. -Deaths and Rates per 100,000 Population, according to the International Abbreviated List of 50 Causes, 1962 and 1963

International List No.		Cause of Death	Numbers of Deaths		Rates per 100,000 Population	
Abbreviated List	Detailed List		1962	1963	1962	1963
B 1	001-008	Tuberculosis of respiratory system.....	692	674	3.7	3.6
B 2	010-019	Tuberculosis, other forms.....	83	82	0.5	0.4
B 3	020-029	Syphilis and its sequelæ.....	129	117	0.7	0.6
B 4	040	Typhoid fever.....	2	1	--	--
B 5	043	Cholera.....	17	--	--	--
B 6	045-048	Dysentery, all forms.....	8	5	0.1	--
B 7	050, 051	Scarlet fever and streptococcal sore throat..	9	7	--	--
B 8	055	Diphtheria.....	24	28	0.1	0.1
B 9	056	Whooping cough.....	40	37	0.2	0.2
B10	057	Meningococcal infections.....	--	--	--	--
B11	058	Plague.....	7	16	--	0.1
B12	080	Acute poliomyelitis.....	--	--	--	--
B13	084	Smallpox.....	81	73	0.4	0.4
B14	085	Measles.....	--	--	--	--
B15	100-108	Typhus and other rickettsial diseases.....	1	1	--	--
B16	110-117	Malaria.....	--	--	--	--

18.—Deaths and Rates per 100,000 Population, according to the International Abbreviated List of 50 Causes, 1962 and 1963—concluded

International List No.		Cause of Death	Numbers of Deaths		Rates per 100,000 Population	
Abbreviated List	Detailed List		1962	1963	1962	1963
B17	030-039, 041, 042, 044, 049, 052-054, 059-074, 081-083, 086-096, 120-138	All other diseases classified as infective and parasitic.....	404	363	2.2	1.9
B18	140-205	Cancer (all malignant neoplasms).....	24,519	25,077	132.0	132.7
	(201)	Cancer.....	23,155	23,637	124.7	125.1
	(204)	Hodgkin's disease.....	238	280	1.3	1.5
B19	210-239	Leukæmia and aleukæmia.....	1,126	1,160	6.1	6.1
B20	280	Benign and unspecified neoplasms.....	357	355	1.9	1.9
B21	290-293	Diabetes mellitus.....	2,169	2,302	11.7	12.2
B22	330-334	Anæmias.....	335	352	1.8	1.9
B23	340	Vascular lesions affecting central nervous system.....	15,300	15,410	82.4	81.6
B24	400-402	Non-meningococcal meningitis.....	193	178	1.0	0.9
B25	410-416	Rheumatic fever.....	49	39	0.3	0.2
B26	420-422	Chronic rheumatic heart disease.....	1,347	1,403	7.3	7.4
B27	430-434	Arteriosclerotic and degenerative heart disease.....	44,438	45,627	239.3	241.5
B28	440-443	Other diseases of heart.....	2,147	2,184	11.6	11.6
B29	444-447	Hypertension with heart disease.....	2,995	2,858	16.1	15.1
B30	450-483	Hypertension without mention of heart.....	876	770	4.7	4.1
B31	490-493	Influenza.....	572	1,183	3.1	6.3
B32	500-502	Pneumonia.....	5,255	5,782	28.3	30.6
B33	503-508	Bronchitis.....	923	1,066	5.0	5.6
B34	540, 541	Ulcer of stomach and duodenum.....	934	952	5.0	5.0
B35	550-553	Appendicitis.....	157	139	0.8	0.7
B36	560, 561, 570, 543, 571, 572	Intestinal obstruction and hernia.....	862	975	4.6	5.2
B37	581	Gastritis, duodenitis, enteritis and colitis except diarrhoea of the newborn.....	889	916	4.8	4.8
B38	590-594	Cirrhosis of liver.....	1,052	1,093	5.7	5.8
B39	610	Nephritis and nephrosis.....	1,462	1,369	7.9	7.2
B40	640-652, 660, 670-689	Hyperplasia of prostate.....	438	512	4.7 ¹	5.4 ¹
B41	750-759	Complications of pregnancy, childbirth and the puerperium.....	191	165	40.7 ²	35.4 ²
B42	760-762	Congenital malformations.....	2,896	2,699	15.6	14.3
B43	763-768	Birth injuries, postnatal asphyxia and atelectasis.....	2,813	2,600	15.1	13.8
B44	769-776	Infections of the newborn.....	526	477	2.8	2.5
B45	780-795	Other diseases peculiar to early infancy and immaturity (unqualified).....	3,977	3,963	21.4	21.0
B46	Residual	Senility without mention of psychosis, ill-defined and unknown causes.....	1,277	1,229	6.9	6.5
BE47	E810-E835	All other diseases.....	11,562	12,345	62.3	65.3
BE48	E800-E802, E840-E862	Motor vehicle accidents.....	4,325	4,451	23.3	23.6
BE49	E963, E970-E979	All other accidents.....	5,759	5,804	31.0	30.7
BE50	E964, E965, E980-E999	Suicide.....	1,331	1,436	7.2	7.6
		Homicide and operations of war.....	266	247	1.4	1.3
Totals, All Causes.....			143,699	147,367	773.8	779.9

¹ Per 100,000 males.² Per 100,000 live births.

Accidents have displaced infectious diseases in recent years as one of the major killers. Table 19 shows clearly that accidents are, by far, the leading cause of death among males from age 1 to 45 and one of the five major causes above that age. Although less predominant among females, accidents are also one of the leading causes of female death beyond the first year of life.

19.—Leading Causes of Death, by Sex at Various Age Groups, 1963

(Rates per 100,000 population)

Cause	Males		Cause	Females		Cause	Total	
	No.	Rate		No.	Rate		No.	Rate

UNDER 1 YEAR ¹								
Immaturity.....	1,328	556	Immaturity.....	1,020	450	Immaturity.....	2,348	504
Congenital malformations.....	1,121	469	Congenital malformations.....	947	417	Congenital malformations.....	2,068	444
Influenza, bronchitis, pneumonia.....	943	395	Influenza, bronchitis, pneumonia.....	708	312	Influenza, bronchitis, pneumonia.....	1,651	354
Postnatal asphyxia and atelectasis.....	829	347	Postnatal asphyxia and atelectasis.....	539	238	Postnatal asphyxia and atelectasis.....	1,368	294
Injury at birth.....	747	313	Injury at birth.....	485	214	Injury at birth.....	1,232	265

1-4 YEARS								
Accidents.....	419	45	Accidents.....	262	29	Accidents.....	681	87
Influenza, bronchitis, pneumonia.....	178	19	Influenza, bronchitis, pneumonia.....	128	14	Influenza, bronchitis, pneumonia.....	306	17
Congenital malformations.....	110	12	Congenital malformations.....	119	13	Congenital malformations.....	229	13
Cancer.....	109	12	Cancer.....	84	9	Cancer.....	193	11
Gastritis, duodenitis, enteritis, colitis.....	50	5	Gastritis, duodenitis, enteritis, colitis.....	38	4	Gastritis, duodenitis, enteritis, colitis.....	88	5

5-19 YEARS								
Accidents.....	1,378	47	Accidents.....	518	19	Accidents.....	1,896	33
Cancer.....	220	8	Cancer.....	190	7	Cancer.....	410	7
Influenza, bronchitis, pneumonia.....	84	3	Influenza, bronchitis, pneumonia.....	73	3	Influenza, bronchitis, pneumonia.....	157	3
Congenital malformations.....	73	3	Congenital malformations.....	67	2	Congenital malformations.....	140	2
Cardiovascular diseases.....	55	2	Cardiovascular diseases.....	40	1	Cardiovascular diseases.....	95	2
Suicide.....	55							

20-44 YEARS								
Accidents.....	2,706	88	Cancer.....	1,092	36	Accidents.....	3,197	52
Cardiovascular diseases.....	1,398	45	Cardiovascular diseases.....	559	18	Cardiovascular diseases.....	1,957	32
Cancer.....	764	25	Accidents.....	491	16	Cancer.....	1,856	30
Suicide.....	462	15	Maternal causes.....	158	5	Suicide.....	618	10
Influenza, bronchitis, pneumonia.....	109	4	Suicide.....	156	5	Influenza, bronchitis, pneumonia.....	212	3

45-64 YEARS

Cardiovascular diseases.....	10,902	649	Cardiovascular diseases.....	4,239	259	Cardiovascular diseases.....	15,141	456
Cancer.....	4,414	263	Cancer.....	3,989	243	Cancer.....	8,403	253
Accidents.....	1,408	84	Accidents.....	416	25	Accidents.....	1,824	55
Influenza, bronchitis, pneumonia.....	600	36	Diabetes mellitus.....	340	21	Influenza, bronchitis, pneumonia.....	849	26
Suicide.....	399	24	Influenza, bronchitis, pneumonia.....	249	15	Diabetes mellitus.....	579	17

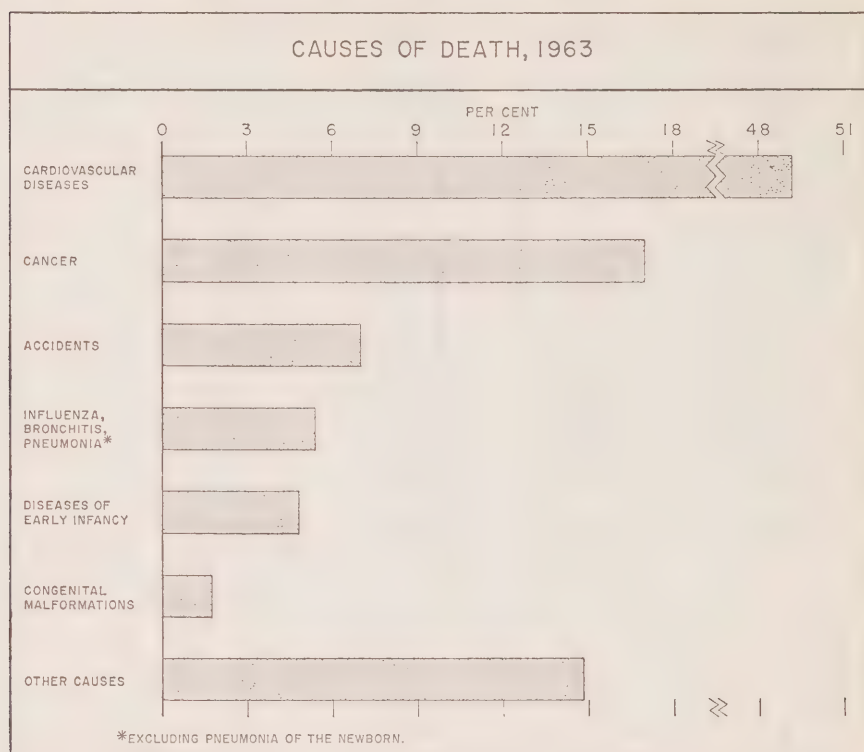
65 YEARS OR OVER

Cardiovascular diseases.....	29,353	4,254	Cardiovascular diseases.....	25,865	3,439	Cardiovascular diseases.....	55,218	3,829
Cancer.....	8,193	1,187	Cancer.....	5,991	796	Cancer.....	14,184	983
Influenza, bronchitis, pneumonia.....	3,015	437	Influenza, bronchitis, pneumonia.....	2,201	293	Influenza, bronchitis, pneumonia.....	5,216	362
Accidents.....	1,133	164	Accidents.....	977	130	Accidents.....	2,110	146
Diabetes mellitus.....	693	100	Diabetes mellitus.....	910	121	Diabetes mellitus.....	1,603	111

ALL AGES

Cardiovascular diseases.....	41,736	438	Cardiovascular diseases.....	30,723	328	Cardiovascular diseases.....	72,459	383
Cancer.....	13,715	144	Cancer.....	11,362	121	Cancer.....	25,077	133
Accidents.....	7,364	77	Influenza, bronchitis, pneumonia.....	3,310	35	Accidents.....	10,255	54
Influenza, bronchitis, pneumonia.....	4,721	50	Accidents.....	2,891	31	Influenza, bronchitis, pneumonia.....	8,031	43
Diseases of early infancy.....	4,158	44	Diseases of early infancy.....	2,882	31	Diseases of early infancy.....	7,040	37

¹Per 100,000 live births.



Subsection 2.—Infant Mortality

Table 1, pp. 243-244, and Table 20 show the striking improvement that has taken place in the rate of infant mortality during the past twenty years. Although 64,823 of the 2,368,986 children born in the five years 1959-63 died before reaching their first birthday, 157,862 others lived who *would have died* at the infant mortality rate prevailing in the period 1926-30. This improvement is attributable to many factors—the higher proportion of births taking place in hospital or under proper prenatal and postnatal care, better supervision of water supplies, improved sanitation, pasteurization of milk, the use of antibiotics, improved home environment as a result of higher living standards and, in recent years, the generally lower age of mothers.

The variations that exist in infant mortality rates from province to province and from one locality to another may be explained by differences in the extent to which these factors apply provincially or locally. Among the provinces, the 1963 male infant mortality rates ranged from a low of 26 to a high of 47, compared with the national average of 30—the latter including the very high rate among the Northwest Territories aboriginal population. Female rates ranged from 12 to 29, compared with the national rate of 23. While the national and provincial rates for both sexes have been declining steadily for some years, for some unknown reason there were a number of reversals in provincial rates recently.

Table 20 shows that mortality among male infants is 25 to 30 p.c. higher than that among female infants for Canada, with wider variations for the individual provinces. For the country as a whole, out of every 1,000 infant boys born alive in 1963, 30 died before reaching their first birthday, whereas out of every 1,000 infant girls born alive, 23 died within one year. As already pointed out, there are on the average 1,057 males born to every 1,000 females but, because male infant mortality is higher, the excess of males is reduced greatly by the end of the first year. For example, in 1960-63 there were 970,167 male children born compared with 919,544 female children, an excess of 50,623 or 5.5 p.c.; in the same period, 29,477 male children died during their first year compared with 21,751 female children so that the excess of males at one year of age was reduced to 42,897 or 4.7 p.c.

20.—Distribution of Infant Deaths by Province and Sex, 1941-63

Province and Year	Males	Fe- males	Rate per 1,000 Male Live Births	Rate per 1,000 Female Live Births	Province or Territory and Year	Males	Fe- males	Rate per 1,000 Male Live Births	Rate per 1,000 Female Live Births
	No.	No.				No.	No.		
Newfoundland.....1951	361	276	60.3	48.0	Saskatchewan.....1941	531	415	56.1	46.2
1961	335	253	41.7	33.5	1951	353	323	31.8	30.4
1962	327	270	42.2	36.9	1961	373	245	30.3	21.0
1963	377	215	47.3	28.7	1962	339	266	28.5	23.3
					1963	385	253	31.9	22.0
P. E. Island.....1941	102	61	94.6	62.8	Alberta.....1941	506	373	57.0	44.3
1951	60	30	43.7	23.5	1951	531	358	38.6	27.0
1961	55	38	37.4	27.8	1961	612	432	30.8	22.7
1962	50	37	33.2	28.4	1962	565	419	28.6	22.0
1963	46	17	30.6	11.8	1963	535	373	27.1	19.9
Nova Scotia.....1941	545	363	77.0	53.2	British Columbia..1941	316	236	41.1	32.1
1951	344	250	38.9	30.2	1951	487	352	33.8	25.8
1961	309	229	31.0	24.3	1961	534	411	27.1	21.8
1962	320	294	32.0	31.2	1962	520	358	26.8	19.1
1963	306	207	31.4	22.5	1963	522	357	27.3	19.5
New Brunswick...1941	515	421	83.1	69.3	Yukon Territory...1951	10	9	57.8	53.3
1951	472	363	57.6	46.0	1961	13	10	45.8	36.5
1961	248	186	29.1	23.0	1962	14	13	47.1	52.0
1962	272	226	31.9	28.5	1963	8	8	32.9	31.3
1963	244	191	29.9	25.1					
Quebec.....1941	3,916	2,854	85.3	65.9	Northwest Territories.....1951	43	27	135.6	81.3
1951	3,335	2,486	53.7	42.3	1961	73	51	128.1	93.2
1961	2,464	1,855	34.7	28.0	1962	77	59	131.8	107.3
1962	2,491	1,803	35.9	27.5	1963	75	46	124.4	82.4
1963	2,228	1,784	32.6	27.3					
Ontario.....1941	1,910	1,384	51.3	39.5	Canada.....1941 ¹	8,788	6,448	67.0	51.9
1951	2,010	1,535	33.9	27.6	1951	8,375	6,298	42.7	34.0
1961	2,090	1,536	25.9	20.0	1961	7,447	5,493	30.5	23.7
1962	2,054	1,567	25.7	20.6	1962	7,379	5,562	30.6	24.3
1963	2,043	1,489	25.6	19.7	1963	7,079	5,191	29.6	22.9
Manitoba.....1941	447	341	58.7	47.4					
1951	369	289	35.6	30.2					
1961	341	247	28.6	21.7					
1962	350	250	29.9	22.3					
1963	310	251	26.8	22.5					

¹ Excludes Newfoundland and the Yukon and Northwest Territories.

Infant Mortality in Urban Centres.—Because of the relatively small numbers of infant deaths in individual cities and towns, the rates for these centres usually vary widely

from year to year. As is evident from Table 2, pp. 245-247, many cities and towns have maintained consistently low rates as compared with the national rate or the rate for the province in which they are situated.

Causes of Infant Deaths.—In 1963 almost 70 p.c. of the infant deaths were caused by immaturity, congenital malformations, pneumonia, postnatal asphyxia and atelectasis, and injury at birth. Immaturity was the underlying cause of 2,348 and was an added complication in 2,972 others. Congenital malformations accounted for 2,068 fatalities, pneumonia for 1,506, postnatal asphyxia for 1,368 and injury at birth for 1,232. Rates for congenital malformations and birth injuries decreased in 1963.

21.—Infant Mortality and Rates per 100,000 Live Births, by Cause, 1961-63

Inter-national List No.	Cause of Death	Numbers of Deaths			Rates per 100,000 Live Births		
		1961	1962	1963	1961	1962	1963
001-019	Tuberculosis	8	6	5	2	1	1
020-029	Syphilis	1	3	3	--	1	1
045-048	Dysentery	14	7	1	3	1	--
050	Scarlet fever	1	1	--	--	--	--
052	Erysipelas	1	--	--	--	--	--
055	Diphtheria	--	--	--	--	--	--
056	Whooping cough	24	19	24	5	4	5
057	Meningococcal infections	8	19	16	2	4	3
085	Measles	30	34	24	6	7	5
140-239	Neoplasms	42	37	48	9	8	10
273	Diseases of thymus gland	13	19	5	3	4	1
325	Mental deficiency	75	65	67	16	14	14
340	Meningitis (non-meningococcal)	109	94	77	23	20	17
391, 392	Otitis media	59	66	49	12	14	11
470-475	Acute upper respiratory infections	81	45	46	17	10	10
480-483	Influenza	108	97	100	23	21	21
490-493	Pneumonia (4 weeks and over)	1,273	1,232	1,146	268	262	246
500-502	Bronchitis	74	84	45	16	18	10
543	Gastritis and duodenitis	4	2	3	1	--	1
560-570	Hernia and intestinal obstruction	107	97	108	22	21	23
571	Gastro-enteritis and colitis	400	373	372	84	79	80
572	Chronic enteritis, and ulcerative colitis	2	4	2	--	1	--
750-759	Congenital malformations	2,192	2,230	2,068	461	475	444
760, 761	Injury at birth	1,264	1,338	1,232	266	285	265
762	Postnatal asphyxia and atelectasis	1,502	1,475	1,368	316	314	294
763	Pneumonia of newborn (under 4 weeks)	410	408	360	86	87	77
764	Diarrhoea of newborn (under 4 weeks)	86	73	67	18	16	14
765-768	Other infections of newborn	43	45	50	9	10	11
769	Antenatal toxemia	120	107	87	25	23	19
770	Erythroblastosis	325	336	289	68	72	62
771	Hæmorrhagic disease of newborn	97	84	83	20	18	18
772	Nutritional maladjustment	53	48	35	11	10	8
773	Ill-defined diseases peculiar to early infancy	972	1,095	1,118	204	233	240
774-776	Immaturity	2,284	2,304	2,348	480	491	504
795	Ill-defined and unknown causes	80	46	51	17	10	11
E810-E825	Motor vehicle accidents	24	17	19	5	4	4
E900-E904	Accidental falls	14	16	13	3	3	3
E916	Accidents caused by fire	23	31	22	5	7	5
E921, E922	Inhalation and ingestion of food or other object	317	313	290	67	67	62
E924, E925	Accidental mechanical suffocation	178	147	162	37	31	35
	Other accidental and violent deaths	64	51	50	13	11	11
	Other specified causes	458	473	417	96	101	90
Totals, All Causes		12,910	12,941	12,270	2,720	2,755	2,634

Age at Death.—Of the 12,270 infants who died within a year of their birth, 8,411, or over 68 p.c., were less than one month old—4,904 during the first day of life, 2,569 from the second to the seventh day, and 938 during the three following weeks.

22.—Infant Deaths, by Age, 1963

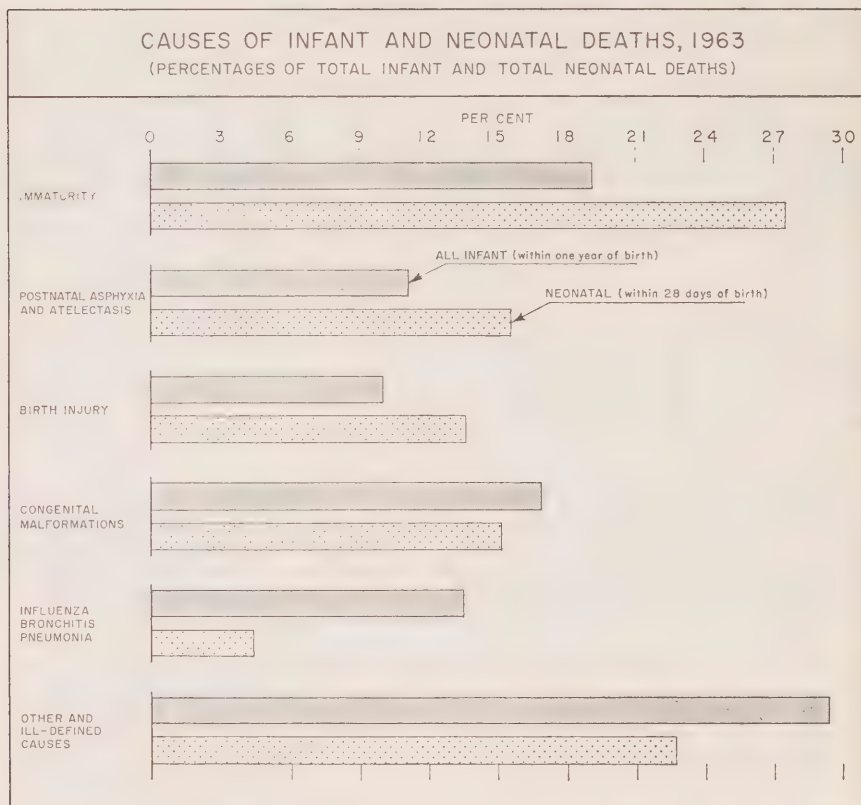
Time of Death	Number	Per-centage	Cumulative		Time of Death	Number	Per-centage	Cumulative	
			Number	Per-centage				Number	Per-centage
1st day.....	4,904	40.0	4,904	40.0	1st month.....	8,411	68.5	8,411	68.5
2nd ".....	1,016	8.3	5,920	48.2	2nd ".....	870	7.1	9,281	75.6
3rd ".....	746	6.1	6,666	54.3	3rd ".....	735	6.0	10,016	81.6
4th ".....	320	2.6	6,986	56.9	4th ".....	552	4.5	10,568	86.1
5th ".....	195	1.6	7,181	58.5	5th ".....	430	3.5	10,998	89.6
6th ".....	159	1.3	7,340	59.8	6th ".....	296	2.4	11,294	92.0
7th ".....	133	1.1	7,473	60.9	7th ".....	270	2.2	11,564	94.2
					8th ".....	149	1.2	11,713	95.5
1st week.....	7,473	60.9	7,473	60.9	9th ".....	160	1.3	11,873	96.8
2nd ".....	466	3.8	7,939	64.7	10th ".....	153	1.2	12,026	98.0
3rd ".....	249	2.0	8,188	66.7	11th ".....	135	1.1	12,161	99.1
4th ".....	223	1.8	8,411	68.5	12th ".....	109	0.9	12,270	100.0

Neonatal Mortality.—Deaths occurring within the first four weeks of birth are conventionally referred to as 'neonatal' deaths. Table 22 shows that over two thirds of all infant deaths occur in this hazardous neonatal period and, as would be expected, are caused mainly by conditions associated with pregnancy or delivery. Table 23 gives numbers and rates of neonatal deaths for 1941-63 and the chart on p. 270 compares the major causes of such deaths with all infant deaths from the same causes.

23.—Neonatal Mortality,¹ by Province, 1941-63

Year	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Canada
NUMBERS													
Av. 1941-45....	344	58	418	453	3,329	2,061	425	469	463	400	..	..	8,076
" 1946-50....	346	52	403	527	3,395	2,511	442	505	553	533	..	..	9,052
" 1951-55....	294	45	342	391	3,241	2,476	395	426	552	535	8	30	8,736
" 1956-60....	324	54	334	322	3,137	2,652	402	414	622	648	8	54	8,970
1961.....	325	54	327	250	2,855	2,627	380	395	707	595	10	39	8,564
1962.....	329	55	380	302	2,948	2,682	381	413	635	601	15	42	8,783
1963.....	312	37	316	276	2,813	2,619	347	401	643	587	7	53	8,411
RATES PER 1,000 LIVE BIRTHS													
Av. 1941-45....	37.0	26.5	27.6	34.7	34.0	26.5	26.8	25.4	24.6	22.6	..	..	29.2
" 1946-50....	28.0	18.2	22.4	31.2	29.4	23.9	22.9	23.1	22.8	20.6	..	..	25.5
" 1951-55....	22.4	16.5	18.7	23.7	25.2	19.2	18.5	18.1	17.8	17.1	19.9	45.0	21.0
" 1956-60....	21.7	20.1	17.5	19.4	22.4	17.4	18.0	17.2	16.8	16.6	15.5	57.1	19.1
1961.....	20.8	19.0	16.9	15.1	20.8	16.7	16.3	16.5	18.2	15.4	17.9	34.9	18.0
1962.....	21.8	19.6	19.6	18.3	21.8	17.2	16.6	17.7	16.4	15.8	27.4	37.0	18.7
1963.....	20.2	12.5	16.7	17.5	21.0	16.9	15.3	17.0	16.7	15.7	14.0	45.7	18.1

¹ Prior to 1951, includes deaths under one calendar month of age; since 1951, includes deaths under 28 days.



Perinatal Mortality.—‘Perinatal’ mortality—the combined total of stillbirths and deaths of live-born infants occurring ‘around’ the natal period—is a relatively new vital statistics concept. Since such deaths frequently have the same underlying causes, associated with pregnancy or delivery, regardless of whether they occur before or after delivery, perinatal deaths are generally considered as including the combined total of stillbirths occurring after at least 28 weeks pregnancy and deaths of live-born infants who fail to survive the first week of life.

In 1963 there were 13,205 such ‘deaths’, of which 5,732 were stillborn and 7,473 live-born but failed to survive one week, with a national rate of 28.0 such deaths for every 1,000 total deliveries. This perinatal rate has declined very slowly, but steadily, from 65.2 in 1921 to 28.0 in 1963.

Subsection 3.—Maternal Mortality

As indicated in Table 1, pp. 243-244, the number of mothers who die in pregnancy and childbirth has been greatly reduced during the past two decades. Although the number of births has been much greater in recent years, the number of maternal deaths declined almost steadily from 1940 (when there were 978 deaths and a rate of 40 deaths for every

10,000 births delivered alive) to an all-time low of 165 in 1963. Since 1951 the rate of maternal mortality has been under 10 and since 1959 it has been under five. Despite this improvement, Canada's maternal death rate (3.5 in 1963) is higher than the rates for several other countries such as Sweden (2.1), Norway (2.1), Denmark (2.2) and New Zealand (2.9). Mortality among unmarried mothers is higher than among married mothers.

Causes of Maternal Deaths.—Table 24 shows the main causes of maternal deaths during the years 1961-63.

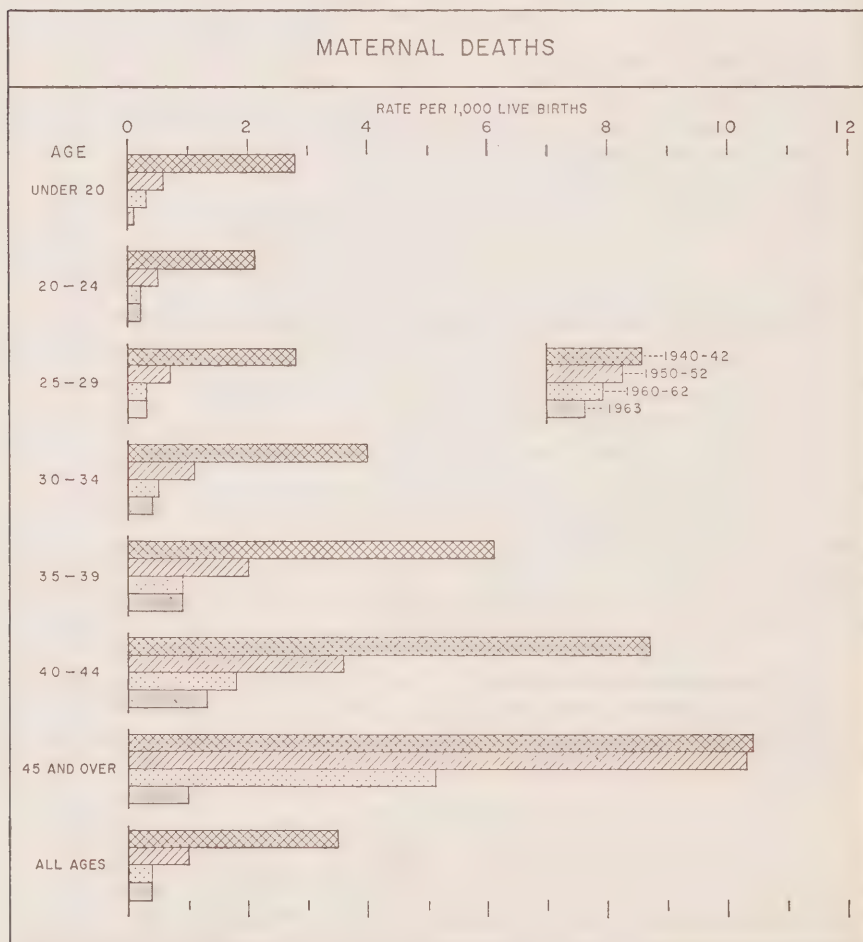
24.—Maternal Mortality and Rates per 100,000 Live Births, by Cause, 1961-63

Inter-national List No.	Cause of Death	Numbers of Deaths			Rates per 100,000 Live Births		
		1961	1962	1963	1961	1962	1963
	Complications of Pregnancy	53	52	43	11	11	9
640, 641	Infections of the genito-urinary tract during pregnancy.....	1	3	6	--	1	1
642	Toxæmias of pregnancy.....	29	23	21	6	5	5
643	Placenta prævia noted before delivery.....	—	—	—	—	—	—
644	Other hæmorrhage of pregnancy.....	3	—	—	1	—	—
645	Ectopic pregnancy.....	5	6	8	1	1	2
646-649	Other complications of pregnancy.....	15	20	8	3	4	2
	Abortion	26	24	27	5	5	6
650, 652	Abortion without mention of sepsis.....	10	9	6	2	2	1
651	Abortion with sepsis.....	16	15	21	3	3	5
	Complications of Delivery	96	78	67	20	17	14
660	Delivery (without complication).....	—	—	—	—	—	—
670	Delivery complicated by placenta prævia or antepartum hæmorrhage.....	18	21	20	4	4	4
671	Delivery complicated by retained placenta....	3	3	5	1	1	1
672	Delivery complicated by other postpartum hæmorrhage.....	20	21	6	4	4	1
673, 674	Delivery complicated by abnormality of bony pelvis or malposition of foetus.....	8	6	8	2	1	2
675	Delivery complicated by prolonged labour of other origin.....	3	5	4	1	1	1
676, 677	Delivery with laceration or other trauma....	27	8	10	6	2	2
678	Delivery with other complications of child-birth.....	17	14	14	4	3	3
	Complications of the Puerperium	44	37	28	9	8	6
681	Sepsis of childbirth and the puerperium.....	13	13	4	3	3	1
682-684	Puerperal phlebitis, thrombosis, pyrexia, pulmonary embolism.....	13	12	9	3	3	2
685, 686	Puerperal eclampsia and toxæmia.....	3	1	5	1	--	1
687-689	Other.....	15	11	10	3	2	2
	Totals, All Puerperal Causes	219	191	165	46	41	35

Of the 165 maternal deaths in the latest year, 43 resulted from complications arising during pregnancy, about half of these from some type of toxæmia; 67 resulted from a

complication of delivery, 28 from a post-delivery complication and 27 from abortive delivery. There has been an encouraging drop in maternal deaths caused by toxæmia during the past three or four years.

Age at Death.—Table 25 shows the distribution of maternal deaths by age group; the average age at death is about four years higher than the average age of all mothers at the time of childbirth. Until recent years, the risk of mortality at childbirth was directly related to the age of the mother—in other words, for all mothers of over 20 years the rate rose with increasing age. While death rates for all age groups of mothers have been declining, there have been rather significant changes in the rates. Formerly, the rate for mothers in the age group 30-34 was twice or three times as high as the rate for the 20-24 group, but recently mortality rates for the four age groups of mothers under 35 years of age have not been far apart, although after age 35 a sharp rise occurs.



25.—Maternal Mortality and Rates per 10,000 Live Births, by Age Group, 1961-63
(Exclusive of Newfoundland)

Age Group	Maternal Deaths						Rates per 10,000 Live Births		
	1961		1962		1963		1961	1962	1963
	No.	p.c.	No.	p.c.	No.	p.c.			
Under 20 years.....	10	4.8	10	5.4	5	3.2	2.5	2.5	1.2
20 — 24 “.....	26	12.5	22	11.8	23	14.6	1.9	1.6	1.6
25 — 29 “.....	36	17.3	37	19.9	33	20.9	2.8	3.0	2.7
30 — 34 “.....	56	26.9	45	24.2	34	21.5	6.3	5.2	4.0
35 — 39 “.....	50	24.0	41	22.0	42	26.6	9.8	8.4	8.8
40 — 44 “.....	25	12.0	27	14.5	20	12.7	16.0	17.5	13.4
45 — 49 “.....	5	2.4	4	2.2	—	—	43.6	38.6	—
50 years or over.....	—	—	—	—	1	0.6	—	—	—
Totals, All Ages.....	208	100.0	186	100.0	153	100.0	4.5	4.1	3.5
Average age at death..... yrs.	32.5		32.5		32.3		...	...	...
Median age at death..... “	32.9		32.7		32.6		...	...	...

¹ The age below and above which half of the maternal deaths occurred.

Section 4.—Natural Increase*

The excess of births over deaths, commonly referred to as natural increase, is a very important factor in the growth of a population. Although the collection of Canadian birth and death statistics began only in 1921, some idea of the rate of natural increase in the early Canadian population may be learned from the estimates shown at the beginning of Sections 2 and 3, which resulted in the following natural increase rates:—

Intercensal Period	Estimated Average Annual Natural Increase Rate (per 1,000 Population)	Intercensal Period	Estimated Average Annual Natural Increase Rate (per 1,000 Population)
1851-61.....	23	1891-1901.....	14
1861-71.....	19	1901-11.....	18
1871-81.....	18	1911-21.....	16
1881-91.....	16		

Because of the combination of high birth rates and declining death rates—despite the fact that death rates were still relatively high—the annual rate of natural increase during the late 1800's and early 1900's varied between 14 and 23; in other terms, the population increased at the rate of 1.5 p.c. to 2.5 p.c. each year by natural increase alone, regardless of any increase attributable to immigration. During the 1920's and early 1930's the birth rate declined more than the death rate and the natural increase rate dropped to a record low of 9.7 in 1937. But higher birth rates during and after World War II and a gradually declining death rate caused the natural increase rate to rise steadily from 10.9 in 1939 to a record 20.3 in 1954. Although after that year there has been a steady drop because of declining birth rates, the natural increase rate still was quite high at 16.8 in 1963.

Table 1, pp. 243-244, gives average rates of natural increase in the provinces for five-year periods 1941-60 and Table 26 gives the provincial figures for males and females separately for 1941, 1951 and 1961-63. High birth rates and declining death rates have given Newfoundland, Alberta, New Brunswick, Quebec and Saskatchewan the highest rates of natural increase in Canada in recent years (excluding the Yukon and Northwest Territories).

* For international comparisons, see Section 7, pp. 282-283.

26.—Natural Increase and Rates per 1,000 Population, by Sex and Province, 1941, 1951 and 1961-63

Province or Territory and Year	Excess of Births Over Deaths	Rate per 1,000 Population	Males		Females	
			Number	Rate per 1,000 Males	Number	Rate per 1,000 Females
Newfoundland.....1951	8,734	24.2	4,369	23.6	4,365	24.8
1961	12,553	27.5	6,350	27.0	6,203	27.8
1962	11,866	25.3	5,945	24.7	5,921	25.9
1963	12,260	25.5	6,130	24.9	6,130	26.2
Prince Edward Island.....1941	915	9.6	483	9.8	432	9.4
1951	1,747	17.9	872	17.4	875	18.2
1961	1,860	17.8	925	17.3	935	18.2
1962	1,749	16.5	930	17.2	819	15.8
1963	1,970	18.5	933	17.1	1,037	19.8
Nova Scotia.....1941	6,989	12.1	3,335	11.3	3,654	13.0
1951	11,313	17.6	5,596	17.2	5,717	18.0
1961	13,247	18.0	6,435	17.2	6,812	18.8
1962	13,090	17.5	6,417	16.9	6,673	18.2
1963	12,609	16.7	6,109	15.9	6,500	17.5
New Brunswick.....1941	7,088	15.5	3,396	14.5	3,692	16.5
1951	11,202	21.8	5,522	21.3	5,680	22.1
1961	11,895	19.8	5,844	19.3	6,051	20.5
1962	11,679	19.2	5,802	18.9	5,877	19.6
1963	10,956	17.9	5,346	17.2	5,610	18.5
Quebec.....1941	54,871	16.5	27,561	16.5	27,310	16.5
1951	86,030	21.2	42,961	21.2	43,069	21.2
1961	100,130	19.1	49,741	18.9	50,389	19.2
1962	97,858	18.3	48,060	17.9	49,798	18.6
1963	95,423	17.4	46,675	17.1	48,748	17.8
Ontario.....1941	33,036	8.7	15,705	8.2	17,331	9.3
1951	70,846	15.4	34,737	15.0	36,109	15.8
1961	106,666	17.1	51,538	16.4	55,128	17.8
1962	103,897	16.4	50,366	15.8	53,531	17.0
1963	101,472	15.8	48,927	15.1	52,545	16.4
Manitoba.....1941	8,317	11.4	3,834	10.1	4,483	12.7
1951	13,207	17.0	6,388	16.2	6,819	17.9
1961	15,919	17.3	7,445	15.9	8,474	18.7
1962	15,465	16.5	7,216	15.2	8,249	17.9
1963	14,823	15.6	6,929	14.4	7,894	16.8
Saskatchewan.....1941	12,006	13.4	5,651	11.8	6,355	15.2
1951	15,293	18.4	7,192	16.6	8,101	20.4
1961	16,887	18.2	7,766	16.2	9,121	20.5
1962	16,337	17.6	7,500	15.6	8,837	19.7
1963	16,102	17.2	7,408	15.4	8,694	19.3
Alberta.....1941	10,923	13.7	5,016	11.8	5,907	16.0
1951	19,836	21.2	9,331	19.0	10,505	23.5
1961	30,051	22.5	14,194	20.6	15,857	24.7
1962	29,540	21.5	13,920	19.7	15,620	23.6
1963	29,023	20.7	13,834	19.1	15,189	22.3
British Columbia.....1941	6,533	8.0	2,342	5.4	4,191	10.9
1951	16,439	14.1	7,107	11.9	9,332	16.4
1961	24,188	14.9	10,829	13.1	13,359	16.7
1962	23,216	14.0	10,205	12.1	13,011	15.9
1963	22,449	13.2	10,042	11.7	12,407	14.9
Yukon Territory.....1951	257	28.6	115	20.9	142	39.4
1961	464	31.7	218	26.7	246	38.1
1962	472	31.5	247	29.4	225	34.1
1963	418	27.9	190	22.6	228	34.5
Northwest Territories.....1951	365	22.8	164	18.2	201	28.7
1961	855	37.2	409	31.9	446	43.8
1962	825	34.4	403	30.3	422	39.4
1963	895	37.3	441	33.2	454	42.4
Canada.....1941	140,678	12.2	67,323	11.4	73,355	13.1
1951	255,269	18.2	124,354	17.5	130,915	18.9
1961	334,715	18.4	161,694	17.5	173,021	19.2
1962	325,994	17.6	157,011	16.7	168,983	18.4
1963	318,400	16.8	152,964	16.0	165,436	17.7

¹ Excludes Newfoundland and the Yukon and Northwest Territories.

The rates of natural increase are higher for females than for males in all provinces because of the higher death rates for males. In the western provinces particularly, the ratio of males to females in the total population is higher than in other parts of Canada and this in itself tends to lower the rate of natural increase. In Canada, a country with a fairly young population and where immigration has been on a large scale, an excess of males is to be expected but the higher rate of natural increase for females may gradually reduce this excess. The trend is toward an eventual excess of females in the total population—as there now is in most European countries—unless immigration again raises the male ratio or death rates among males are greatly reduced.

Natural Increase in Urban Centres.—The classification of births and deaths by place of residence makes it possible to compile the natural increase in the population of urban centres; the figures for centres of over 20,000 population are presented in Table 2, pp. 245-247.

Section 5.—Marriages and Divorces

Subsection 1.—Marriages*

In 1963 Canada's crude marriage rate was 6.9 per 1,000 population, the lowest since 1934. Provincial rates varied from 6.4 per 1,000 population for Prince Edward Island to 7.2 for Alberta and New Brunswick.

Table 27 gives the number of marriages and the marriage rates for Canada and the provinces for 1941, 1951 and the three consecutive years 1961-63, together with percentages of brides and bridegrooms according to place of birth. For the country as a whole, over 83 p.c. of the bridegrooms of 1963 were born in Canada and over 69 p.c. in the province in which they were married; almost 87 p.c. of the brides were born in Canada and 75 p.c. in the province in which they were married. During the postwar years until 1959 an increasing number of marriages were of persons born outside the country, because of the heavy immigration of young persons. However, since 1959 the proportion of foreign-born bridegrooms declined from 19.6 to 16.5 p.c. in 1963 and the proportion of foreign-born brides from 15.9 to 13.1 p.c. There are wide variations in the pattern of intermarriage of foreign-born and native-born persons as between provinces; in the older Atlantic Provinces and in Quebec there is a greater tendency than in the other provinces to marry native Canadians and in these areas both partners are often born in the same province.

* For international comparisons, see Section 7, pp. 282-283.

27.—Marriages and Rates per 1,000 Population, by Province, with Percentage Distribution of Bridegrooms and Brides by Nativity, 1941, 1951 and 1961-63

Province and Year	Total Marriages	Rate per 1,000 Population	Born in Province Where Married		Born in Other Provinces		Born Outside Canada	
			Grooms	Brides	Grooms	Brides	Grooms	Brides
	No.		p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Newfoundland.....1951	2,517	7.0	85.2	96.7	2.4	1.9	12.4	1.4
.....1961	3,306	7.2	88.0	97.2	3.8	1.6	8.2	1.2
.....1962	3,274	7.0	89.4	96.9	3.8	1.5	6.8	1.7
.....1963	3,280	6.8	88.5	96.5	3.7	1.5	7.9	2.0
Prince Edward Island.....1941	673	7.1	78.8	86.6	15.0	9.4	6.2	4.0
.....1951	583	5.9	82.3	91.1	12.9	6.0	4.8	2.9
.....1961	624	6.0	81.7	89.6	15.4	7.2	2.9	3.2
.....1962	677	6.4	76.1	91.0	20.8	6.8	3.1	2.2
.....1963	684	6.4	73.2	87.3	22.7	11.1	4.1	1.6

27.—Marriages and Rates per 1,000 Population, by Province, with Percentage Distribution of Bridegrooms and Brides by Nativity, 1941, 1951 and 1961-63—concluded

Province or Territory and Year	Total Marriages	Rate per 1,000 Population	Born in Province Where Married		Born in Other Provinces		Born Outside Canada	
			Grooms	Brides	Grooms	Brides	Grooms	Brides
	No.		p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Nova Scotia.....1941	6,596	11.4	73.2	83.8	16.8	9.5	10.0	6.7
1951	5,094	7.9	78.2	86.7	15.9	9.0	6.0	4.3
1961	5,292	7.2	75.2	87.8	18.8	8.8	6.0	3.4
1962	5,256	7.0	75.9	88.0	18.9	9.0	5.2	3.0
1963	5,127	6.8	76.3	87.5	17.6	9.0	6.1	3.5
New Brunswick.....1941	4,941	10.8	78.5	84.4	13.3	9.7	8.2	5.9
1951	4,386	8.5	80.0	86.9	10.1	6.7	9.8	6.4
1961	4,504	7.5	75.4	86.3	14.9	7.9	9.7	5.8
1962	4,382	7.2	75.5	85.8	14.7	8.3	9.9	5.9
1963	4,391	7.2	75.7	85.9	14.0	8.2	10.3	5.9
Quebec.....1941	32,782	9.8	86.1	89.3	6.7	5.9	7.2	4.8
1951	35,704	8.8	86.7	89.5	6.1	5.5	7.2	5.0
1961	35,943	6.8	83.6	87.4	5.7	4.8	10.7	7.8
1962	37,038	6.9	85.1	88.4	5.5	4.9	9.4	6.8
1963	37,358	6.8	85.4	88.6	5.6	4.8	9.0	6.5
Ontario.....1941	43,270	11.4	89.2	89.0	4.2	4.5	6.7	6.5
1951	45,198	9.8	65.9	72.4	14.6	12.2	19.5	15.4
1961	44,434	7.1	61.5	67.2	12.9	11.0	25.6	21.8
1962	44,454	7.0	62.8	67.7	12.8	11.5	24.4	20.8
1963	45,306	7.0	62.4	67.8	13.5	11.6	24.1	20.7
Manitoba.....1941	8,305	11.4	63.0	73.7	17.4	15.0	19.6	11.4
1951	7,366	9.5	67.9	75.1	15.4	13.3	16.8	11.6
1961	6,512	7.1	66.6	74.5	18.5	14.5	14.8	11.0
1962	6,354	6.8	66.9	75.9	18.0	13.0	15.1	11.1
1963	6,694	7.0	67.2	75.7	18.4	13.8	14.4	10.5
Saskatchewan.....1941	7,036	7.9	64.7	79.1	16.1	10.0	19.1	10.9
1951	6,805	8.2	78.3	86.4	10.7	6.4	11.1	7.2
1961	6,149	6.6	79.3	85.8	11.9	8.7	8.8	5.5
1962	6,044	6.5	80.8	85.8	11.7	8.7	8.3	5.6
1963	6,197	6.6	78.4	85.3	13.4	9.1	8.2	5.7
Alberta.....1941	8,470	10.6	50.0	63.4	23.9	19.9	26.2	16.8
1951	9,305	9.9	56.0	67.4	25.7	19.6	18.3	13.0
1961	10,474	7.9	54.4	62.3	25.8	21.8	19.8	15.9
1962	10,423	7.6	54.4	62.0	25.9	22.8	19.7	15.2
1963	10,163	7.2	55.4	62.5	26.0	23.1	18.6	14.4
British Columbia.....1941	9,769	11.9	35.9	43.5	35.6	37.1	28.5	19.4
1951	11,272	9.7	35.5	41.6	43.1	43.0	21.3	15.5
1961	10,964	6.7	36.4	45.9	35.9	32.4	27.7	21.8
1962	11,196	6.7	39.8	48.0	34.8	31.9	25.4	20.1
1963	11,677	6.9	39.7	48.8	35.4	31.3	24.9	19.8
Yukon Territory.....1961	128	8.8	12.5	24.2	63.3	52.3	24.2	23.4
1962	109	7.3	10.1	26.6	67.0	53.2	22.9	20.2
1963	95	6.3	11.6	25.3	65.3	60.0	23.2	14.7
Northwest Territories.....1961	145	6.3	54.5	61.4	35.9	31.7	9.7	6.9
1962	174	7.3	60.9	66.7	27.6	26.4	11.5	6.9
1963	139	5.8	69.1	74.1	20.1	20.1	10.8	5.8
Canada¹.....1941	121,842	10.6	76.8	81.5	11.4	10.1	11.7	8.4
1951	128,230	9.2	70.5	76.5	15.1	12.8	14.5	10.6
1961	128,475	7.0	67.9	74.2	14.3	11.7	17.9	14.1
1962	129,381	7.0	69.2	75.0	14.1	11.8	16.7	13.2
1963	131,111	6.9	69.1	75.0	14.5	11.9	16.5	13.1

¹ Newfoundland included from 1951 and the Yukon and Northwest Territories from 1961.

Age and Marital Status of Brides and Bridegrooms.—Table 28 shows that 90.9 p.c. of the brides and 91.4 p.c. of the grooms in 1963 had never previously married, while 5.0 p.c. of the brides and 4.4 p.c. of the bridegrooms had been widowed. The average age

at marriage of bachelors was just under 26 years and that of spinsters just under 23 years. The average age of widowers and widows at time of remarriage was slightly more than double that of bachelors and spinsters.

28.—Brides and Bridegrooms, by Age and Marital Status, 1963

Age Group	BRIDES							
	Numbers				Percentages			
	Spinsters	Widows	Divorced	Total	Spinsters	Widows	Divorced	Total
12-14 years.....	92	—	—	92	0.1	—	—	0.1
15-19 ".....	40,122	17	30	40,169	33.7	0.3	0.6	30.6
20-24 ".....	58,462	177	674	59,313	49.0	2.7	12.5	45.2
25-29 ".....	12,303	316	1,193	13,812	10.3	4.9	22.2	10.5
30-34 ".....	4,069	442	1,162	5,673	3.4	6.8	21.6	4.3
35-39 ".....	1,874	569	855	3,298	1.6	8.8	15.9	2.5
40-44 ".....	996	734	625	2,355	0.8	11.3	11.6	1.8
45-49 ".....	587	892	428	1,907	0.5	13.7	8.0	1.5
50-54 ".....	365	914	223	1,502	0.3	14.1	4.1	1.1
55-59 ".....	209	769	105	1,083	0.2	11.8	2.0	0.8
60-64 ".....	84	688	49	821	0.1	10.6	0.9	0.6
65 years or over.....	70	984	30	1,084	0.1	15.1	0.6	0.8
Totals, Stated Ages..	119,233	6,502	5,374	131,109	100.0	100.0	100.0	100.0
Age not stated.....	2	—	—	2	...	...	...	...
Totals, All Ages.....	119,235	6,502	5,374	131,111	90.9	5.0	4.1	100.0
Average ages..... yrs.	22.8	50.2	35.0	24.6	...	...	...	...
Median ages ¹ "	21.2	50.5	33.4	21.5	...	...	...	...
	BRIDEGROOMS							
	Numbers				Percentages			
	Bachelors	Widowers	Divorced	Total	Bachelors	Widowers	Divorced	Total
15-19 years.....	8,516	—	—	8,516	7.1	—	—	6.5
20-24 ".....	65,017	37	229	65,283	54.2	0.6	4.2	49.8
25-29 ".....	29,373	114	974	30,461	24.5	2.0	17.9	23.2
30-34 ".....	9,433	240	1,192	10,865	7.9	4.2	21.8	8.3
35-39 ".....	3,723	350	998	5,071	3.1	6.1	18.3	3.9
40-44 ".....	1,713	436	722	2,871	1.4	7.6	13.2	2.2
45-49 ".....	846	520	598	1,964	0.7	9.0	11.0	1.5
50-54 ".....	557	723	359	1,639	0.5	12.5	6.6	1.3
55-59 ".....	345	758	232	1,335	0.3	13.1	4.3	1.0
60-64 ".....	172	768	91	1,031	0.1	13.3	1.7	0.8
65 years or over.....	186	1,825	61	2,072	0.2	31.6	1.1	1.6
Totals, Stated Ages..	119,881	5,771	5,456	131,108	100.0	100.0	100.0	100.0
Age not stated.....	3	—	—	3	...	...	...	...
Totals, All Ages.....	119,884	5,771	5,456	131,111	91.4	4.4	4.2	100.0
Average ages..... yrs.	25.6	56.4	38.4	27.5	...	...	...	...
Median ages ¹ "	23.8	58.1	36.7	24.3	...	...	...	...

¹ The ages below and above which half of the marriages occurred.

Religious Denominations of Brides and Bridegrooms.—The distribution of brides and bridegrooms by religious denominations is roughly the same as that for the population as a whole. Table 29 shows the very strong influence that religion has on marriage. About

70 p.c. of all marriages are between persons of the same religious denomination; in 1963 among those of Jewish faith it was about 90 p.c.; among Roman Catholics about 87 p.c.; United Church about 59 p.c.; and Eastern Orthodox about 63 p.c.

29.—Marriages by Religious Denominations of Contracting Parties, 1963

Denomination of Bridegroom	Denomination of Bride										Total Marriages	P.C. of Grooms
	Anglican	Baptist	Eastern Orthodox	Jewish	Lutheran	Presbyterian	Roman Catholic ¹	United Church	Other Sects	Not Stated		
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	
Anglican.....	7,138	572	87	20	414	584	2,032	3,353	590	—	14,790	11.3
Baptist.....	591	1,932	14	3	108	181	433	907	289	1	4,459	3.4
Eastern Orthodox.....	139	23	1,335	6	86	25	365	242	41	—	2,262	1.7
Jewish.....	32	5	6	1,303	11	8	60	32	28	—	1,485	1.1
Lutheran.....	515	121	45	3	1,994	160	871	1,037	298	1	5,045	3.8
Presbyterian.....	698	170	27	8	133	1,610	595	1,080	176	—	4,497	3.4
Roman Catholic ¹	2,131	450	239	32	723	547	55,381	2,671	991	3	63,168	48.2
United Church.....	3,362	833	181	20	737	1,007	2,715	14,649	1,024	2	24,530	18.7
Other sects.....	861	321	60	21	336	222	1,208	1,340	6,479	1	10,849	8.3
Not stated.....	4	—	2	—	—	—	—	4	4	6	26	...
Totals.....	15,471	4,427	1,996	1,416	4,542	4,344	63,666	25,315	9,920	14	131,111	100.0
P.C. of brides.....	11.8	3.4	1.5	1.1	3.5	3.3	48.6	19.3	7.6	...	100.0	70.0 ²

¹ Includes Greek Catholic denomination.

² Percentage of marriages between contracting parties of the same religious denomination.

Subsection 2.—Divorces

Before World War I the number of divorces granted in Canada was very small, and represented less than one per 1,000 of the yearly number of marriages. After that War, however, there was a definite upward trend; the number advanced to 8,213 in 1947, declined gradually to a postwar low of 5,270 in 1951 and from 1953 to 1963 fluctuated between 5,923 and 7,686. The 1964 preliminary figure of 8,589 was the highest on record.

30.—Dissolutions of Marriage (Divorces), by Province, 1941-64

NOTE.—Figures for individual years from 1900 to 1953 are given in the 1956 Year Book, p. 230, and for 1954-60 in the 1965 edition, pp. 263-264.

Year	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Canada
NUMBERS											
Av. 1941-45.....	..	2	92	104	99	1,398	305	207	432	937	3,576
" 1946-50.....	..	21	185	245	303	2,839	500	383	724	1,676	6,877
" 1951-55.....	5	10	212	167	327	2,430	356	231	612	1,461	5,811
" 1956-60.....	5	4	227	194	403	2,801	315	247	788	1,514	6,498
1961.....	6	8	245	194	348	2,739	312	251	1,039	1,397	6,563 ¹
1962.....	—	5	229	181	—	3,140	339	281	1,084	1,490	6,788 ²
1963.....	8	8	271	172	491	3,237	369	331	1,268	1,516	7,686 ³
1964 ^p	7	5	315	210	834	3,474	418	315	1,389	1,596	8,589 ^{4,5}
RATES PER 100,000 POPULATION											
Av. 1941-45.....	..	2.2	15.4	22.4	2.9	35.8	42.0	24.4	54.3	104.8	30.3
" 1946-50.....	..	22.1	29.7	49.3	8.0	66.4	66.8	45.9	84.6	155.8	53.0
" 1951-55.....	1.3	9.8	32.0	31.4	7.6	49.2	44.0	26.9	60.3	116.8	39.1
" 1956-60.....	1.2	4.0	32.0	33.9	8.2	48.4	35.9	27.6	65.3	99.8	38.2
1961.....	1.3	7.6	33.2	32.4	6.6	43.9	33.9	27.1	78.0	85.8	36.0 ¹
1962.....	—	4.7	30.7	29.8	—	49.5	36.3	30.2	79.1	89.8	36.4 ²
1963.....	1.7	7.5	35.8	28.0	9.0	50.2	38.8	35.5	90.2	89.4	40.7 ³
1964 ^p	1.4	4.7	41.4	34.0	15.0	52.7	43.6	33.4	97.0	91.8	44.7 ^{4,5}

¹ Includes 24 in Yukon Territory.

² Includes 14 in Yukon Territory and five in the Northwest Territories.

³ Includes 13 in Yukon Territory and two in the Northwest Territories.

⁴ Includes 24 in Yukon Territory and two in the Northwest Territories.

⁵ Includes Bills of Divorce passed by the House of Commons during the 1964-65 Session of Parliament.

Section 6.—Canadian Life Tables

Five official series of life tables for Canada and the provinces and regions have been published to date, based on deaths in the three-year period around each of the Censuses of 1931, 1941, 1951, 1956 and 1961. The life table values for 1961 are given in abbreviated form in Table 31.

Life tables give some measure of the health and general conditions of survival of an 'artificial' population in a conventional, standard form. A hypothetical number (100,000) of births of each sex is assumed as a starting point. The life tables show how, on the basis of the mortality rates at each age in the given years, these 100,000 of each sex are reduced in number by death. For example, during the year 1961, of 100,000 males born, 3,058 would have died in their first year, according to the mortality rates in effect during the period 1960-62, so that 96,942 would survive to one year of age; 179 would have died in their second year so that 96,763 survived to two years of age, and so on. At 100 years of age only 105 of the original 100,000 would have survived. The probability of death at each age is the ratio between the number of deaths and the population at each age. Finally, the expectation of life is the number of years which a person on the average might expect to live if the mortality rates in the given years remained constant throughout his lifetime.

Mortality rates at all ages for males have been almost consistently higher than for females. Males have the highest risk of mortality as compared with females during their first year of life, from their late 'teens to early 30's and from age 50 to 65. For both boys and girls the risk of mortality drops rapidly during childhood and is lowest at about age 10, increases gradually to about age 40 for males and about 50 for females and then rises steeply with advancing age. As an illustration of the information available from study of the life tables, it may be observed that at the mortality rates given in the 1961 life table (see Table 31) about 12,100 males would have died before reaching age 50 as compared with about 7,600 females; only 57,517 of the original group of 100,000 males would have survived to age 70 as compared with 72,746 females.

31.—Canadian Life Table, 1961

Age	Males				Females			
	Number Living at Each Age	Number Dying Between Each Age and the Next	Probability of Dying Before Reaching Next Birthday	Expectation of Life	Number Living at Each Age	Number Dying Between Each Age and the Next	Probability of Dying Before Reaching Next Birthday	Expectation of Life
				yrs.				yrs.
At birth.....	100,000	3,058	.03058	68.35	100,000	2,387	.02387	74.17
1 year.....	96,942	179	.00185	69.50	97,613	160	.00164	74.98
2 years.....	96,763	110	.00114	68.63	97,453	94	.00096	74.11
3 ".....	96,653	96	.00099	67.71	97,359	69	.00071	73.18
4 ".....	96,557	80	.00083	66.78	97,290	59	.00061	72.23
5 ".....	96,477	292	.00073	65.83	97,231	196	.00053	71.27
10 ".....	96,185	282	.00050	61.02	97,035	147	.00029	66.41
15 ".....	95,903	555	.00089	56.20	96,888	229	.00040	61.51
20 ".....	95,348	771	.00153	51.51	96,659	281	.00055	56.65
25 ".....	94,577	710	.00157	46.91	96,378	333	.00064	51.80
30 ".....	93,867	758	.00150	42.24	96,045	433	.00079	46.98
35 ".....	93,109	1,048	.00193	37.56	95,612	654	.00115	42.18

31.—Canadian Life Table, 1961—concluded

Age	Males				Females			
	Number Living at Each Age	Number Dying Between Each Age and the Next	Probability of Dying Before Reaching Next Birthday	Expectation of Life	Number Living at Each Age	Number Dying Between Each Age and the Next	Probability of Dying Before Reaching Next Birthday	Expectation of Life
				yrs.				yrs.
40 years.....	92,061		.00282	32.96	94,958		.00174	37.45
45 "	90,486	1,575	.00465	28.49		992	.00277	32.82
50 "	87,896	2,590	.00772	24.25	92,394	1,572	.00436	28.33
55 "	83,797	4,099	.01265	20.30	90,000	2,394	.00675	24.01
60 "	77,546	6,251	.01999	16.73	86,387	3,613	.01064	19.90
65 "	68,774	8,772	.02972	13.53	80,916	5,471	.01718	16.07
70 "	57,517	11,257	.04467	10.67	72,746	8,170	.02774	12.58
75 "	43,791	13,726	.06706	8.21	61,052	11,694	.04664	9.48
80 "	28,936	14,855	.10091	6.14	45,161	15,891	.07941	6.90
85 "	15,271	13,665	.15231	4.46	26,884	18,277	.13118	4.89
90 "	5,647	9,624	.22712	3.16	11,262	15,622	.20708	3.39
95 "	1,196	4,451	.33123	2.20	2,723	8,539	.31226	2.32
100 "	105	1,091	.47051	1.49	278	2,445	.45185	1.56

By 1961, life expectancy *at birth* in Canada had reached a new high point of 68.4 years for males and about 74.2 for females—comparable to the expectancy for other countries of the world with highly developed programs of medical and public health care. Once a child has passed its first year of life, however, its life expectancy increases appreciably. At one year of age a male child *at present mortality risks* may, on the average, expect to live an additional 69.5 years and a female almost 75 years, representing for an infant boy a gain of 1.2 years over his expectation at birth and for an infant girl a gain of 0.8 years. The expectation of life of a 15-year-old boy is 56.2 additional years; of a 15-year-old girl 61.5 years. At 25 years of age the expectation is about 46.9 years for men and 51.8 years for women and at age 70, 10.7 years for men and 12.6 years for women.

Table 32 summarizes the life expectancy figures extracted from the Canadian life tables for 1931, 1941, 1951, 1956 and 1961. According to these figures, life expectancy at birth for men increased about three quarters of a year between 1956 and 1961 and 1.3 years between 1951 and 1956, compared with 3.4 years from 1941 to 1951 and 2.9 years from 1931 to 1941; females gained one and one quarter years between 1956 and 1961 and 2.1 years between 1951 and 1956, compared with 4.5 years and 4.2 years, respectively, in the preceding decades. Thus, from 1931 to 1961 a total of 8.4 years was added to male life expectancy and 12.1 years to female longevity.

The increases in life expectancy have been predominantly at the younger ages, particularly in infancy, and diminish with advanced age. For example, since 1931, 3.5 years have been added to the life expectancy of a five-year-old male, 2.5 years to a 20-year-old, about one year to a 40-year-old and about half a year to a 60-year-old as compared with 8.4 years for a newborn male. During this period, life expectancy for a five-year-old female gained 8.1 years, for a 20-year-old 6.9 years, for a 40-year-old 4.4 years and for a 60-year-old two and three quarter years as compared with 12.1 years for a newborn female.

Longevity has improved for both sexes, though more so and at all ages for females, but there has been only slight improvement for males beyond middle life. Briefly, the rapid decline in the death rate for infants of both sexes is continuing but the declines are slower with advancing age, so that relatively stationary death rates have been established from about 50 years onward for males and from about 80 years onward for females.

The fact that such a pattern exists is important in interpreting the results of these life tables. The arbitrary population base of 100,000 of each sex in the 1956 tables, for example, has been subjected to the mortality rates in effect in 1960-62, and the life expectancy computed *as if those death rates at each age were to prevail during their lifetime*. Actually the theoretical 200,000 infants born in 1960-62 will most probably have a pattern of survival and life expectancy quite different from that of the present life tables as they will spend most of their lives under conditions of public health and medical care which in all likelihood will be superior to those prevailing in 1960-62.

The improvement in life expectancy, particularly among children and adolescents, is caused mainly by the substantial reduction in recent years in mortality from infectious diseases; on the other hand, diseases associated with middle and old age are much less amenable to control. It is therefore unlikely that improvement in life expectancy in the future will be comparable to that of the past 30 years. As approximately 9 p.c. of deaths in 1960-62 occurred among infants and an additional 77 p.c. among persons over age 50, any additional improvement must come as the result of further declines in mortality from conditions associated with childbirth and early infancy, further control of infectious diseases, prevention of accidents, and advances in combating diseases associated with middle and old age, such as cardiovascular-renal conditions and cancer.

32.—Expectation of Life, 1931, 1941, 1951, 1956 and 1961

Age	1931		1941		1951		1956		1961	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.
At birth.....	60.00	62.10	62.96	66.30	66.33	70.83	67.61	72.92	68.35	74.17
1 year.....	64.69	65.71	66.14	68.73	68.33	72.33	69.04	73.99	69.50	74.98
2 years.....	64.46	65.42	65.62	68.16	67.66	71.55	68.21	73.15	68.63	74.11
3 ".....	63.84	64.75	64.88	67.38	66.68	70.66	67.31	72.24	67.71	73.18
4 ".....	63.11	63.99	64.07	66.56	65.79	69.74	66.38	71.31	66.78	72.23
5 ".....	62.30	63.17	63.22	65.69	64.86	68.80	65.45	70.35	65.83	71.27
10 ".....	57.96	58.72	58.70	61.08	60.15	64.02	60.67	65.51	61.02	66.41
15 ".....	53.41	54.15	54.06	56.36	55.39	59.19	55.86	60.64	56.20	61.51
20 ".....	49.05	49.76	49.57	51.76	50.76	54.41	51.19	55.80	51.51	56.65
25 ".....	44.83	45.54	45.18	47.26	46.20	49.67	46.61	50.97	46.91	51.80
30 ".....	40.55	41.38	40.73	42.81	41.60	44.94	41.98	46.17	42.24	46.98
35 ".....	36.23	37.19	36.26	38.37	37.00	40.24	37.34	41.40	37.56	42.18
40 ".....	31.98	33.02	31.87	33.99	32.45	35.63	32.74	36.69	32.96	37.45
45 ".....	27.79	28.87	27.60	29.67	28.05	31.14	28.28	32.09	28.49	32.82
50 ".....	23.72	24.79	23.49	25.46	23.88	26.80	24.04	27.65	24.25	28.33
55 ".....	19.88	20.84	19.64	21.42	20.02	22.61	20.12	23.38	20.30	24.01
60 ".....	16.29	17.15	16.06	17.62	16.49	18.64	16.54	19.34	16.73	19.90
65 ".....	12.98	13.72	12.81	14.08	13.31	14.97	13.36	15.60	13.53	16.07
70 ".....	10.06	10.63	9.94	10.93	10.41	11.62	10.51	12.17	10.67	12.58
75 ".....	7.57	7.98	7.48	8.19	7.89	8.73	7.98	9.15	8.21	9.48
80 ".....	5.61	5.92	5.54	6.03	5.84	6.38	5.89	6.75	6.14	6.90
85 ".....	4.10	4.38	4.05	4.35	4.27	4.57	4.27	4.97	4.46	4.89
90 ".....	2.97	3.24	2.93	3.13	3.10	3.24	3.07	3.67	3.16	3.39
95 ".....	2.14	2.40	2.09	2.26	2.24	2.27	2.18	2.74	2.20	2.32
100 ".....	1.53	1.77	1.46	1.64	1.60	1.59	1.52	2.05	1.49	1.66

Table 33 shows provincial or regional life expectancy for males and females at selected ages. According to the 1961 figures, male life expectancy at birth continues to be below 70 and that for females above 72 in all of the five regions. During the period 1931-61, life expectancy at birth for males increased from 60.00 to 68.35, or 8.35 years, varying from 6.32 years for the Prairie Provinces to 11.09 years for Quebec; life expectancy at birth for females rose from 62.10 to 74.17, or 12.07 years, varying from 10.08 years for British Columbia to 14.97 years for Quebec. Quebec has shown the greatest improvement of any region among young males and females and middle-aged females, and British Columbia has shown the greatest improvement among middle-aged males.

33.—Expectation of Life at Selected Ages, by Province or Region, 1931, 1941, 1951, 1956 and 1961

Province or Region and Age	1931		1941		1951		1956		1961	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Atlantic Provinces—¹										
At birth.....	60.20	61.91	61.69	64.63	66.57	70.50	67.91	72.89	68.58	73.92
1 year.....	64.76	65.44	65.68	67.78	69.08	72.41	69.68	74.23	70.06	75.10
20 years.....	49.22	49.62	49.36	51.33	51.59	54.52	51.95	56.01	52.17	56.82
40 years.....	32.73	33.70	32.22	34.19	33.48	35.99	33.58	37.03	33.76	37.70
65 years.....	13.63	14.59	13.13	14.50	13.90	15.42	13.95	15.91	14.16	16.35
Quebec—										
At birth.....	56.19	57.80	60.18	63.07	64.42	68.58	66.13	71.02	67.28	72.77
1 year.....	62.45	62.62	64.45	66.28	67.19	70.71	68.11	72.56	68.71	73.80
20 years.....	47.77	47.73	48.38	49.85	49.76	52.92	50.36	54.43	50.82	55.54
40 years.....	31.04	31.75	30.94	32.72	31.54	34.36	31.91	35.42	32.29	36.38
65 years.....	12.60	13.15	12.44	13.41	12.81	14.17	12.88	14.73	13.16	15.27
Ontario—										
At birth.....	61.30	63.92	64.55	68.43	66.87	71.85	67.80	73.57	68.32	74.40
1 year.....	65.05	66.84	66.74	70.07	68.34	72.91	68.76	74.25	69.14	74.95
20 years.....	48.79	50.13	49.57	52.40	50.58	54.76	50.81	55.95	51.03	56.53
40 years.....	31.56	32.90	31.54	34.11	32.03	35.75	32.24	36.74	32.35	37.27
65 years.....	12.67	13.47	12.63	14.03	13.07	14.92	12.97	15.56	13.05	15.90
Prairie Provinces—										
At birth.....	63.47	65.49	65.43	68.19	68.36	72.28	69.26	74.18	69.79	75.66
1 year.....	67.24	68.30	68.02	70.22	69.90	73.43	70.48	75.06	70.96	76.40
20 years.....	50.98	51.68	51.28	53.08	52.24	55.53	52.55	56.88	52.90	58.08
40 years.....	33.34	34.35	33.32	34.96	33.86	36.63	34.12	37.71	34.37	38.83
65 years.....	13.60	14.40	13.35	14.62	13.88	15.51	14.01	16.20	14.22	17.00
British Columbia—										
At birth.....	62.15	65.34	63.65	68.96	66.73	72.37	68.14	73.91	68.94	75.42
1 year.....	64.55	67.16	65.40	70.17	67.97	73.32	69.19	74.68	69.83	76.00
20 years.....	48.68	51.18	48.99	53.09	50.41	55.51	51.32	56.52	51.85	57.61
40 years.....	32.17	34.27	31.70	35.14	32.45	36.72	33.11	37.49	33.56	38.46
65 years.....	13.36	14.60	12.96	14.83	13.50	15.86	13.72	16.15	13.98	16.94

¹ Figures for 1931 and 1941 are exclusive of Newfoundland.

Section 7.—International Comparisons of Vital Statistics

Table 34 gives a summary of Canada's national and provincial vital statistics rates along with those of several other countries. It will be noted that among the countries listed the low crude death rate in Canada is bettered by three countries—Venezuela, Japan and the Union of Soviet Socialist Republics—and that some of the provinces have lower rates than most other countries. The birth rate also helps to give Canada one of the fastest growing populations, currently ranking seventh among those listed. However, 13 countries reported lower or equal rates of infant mortality, some as low as 15 or 16 per 1,000 live births (Sweden and Netherlands), as compared with Canada's rate of 26.

34.—Principal Vital Statistics Rates of Selected Countries, 1963

Note.—Countries are ranked according to the highest rates for births, marriages and natural increase and according to the lowest for deaths.

Source: United Nations publications.

Country or Province	Births		Deaths		Infant Mortality		Neonatal Mortality ¹		Maternal Mortality		Marriages		Natural Increase	
	Rate ²	Rank	Rate ²	Rank	Rate ³	Rank	Rate ³	Rank	Rate ³	Rank	Rate ²	Rank	Rate ²	Rank
Australia.....	21.6	12	8.7	7	20	5	14	3	0.3	2	7.4	13	12.9	10
Austria.....	18.7	20	12.7	25	32	13	22	9	0.74	6	8.1	7	6.0	25
Belgium.....	17.1	27	12.7	25	25	11	19 ⁵	7	0.34	2	6.8	17	4.4	27
Canada.....	24.6	7	7.8	4	26	9	18	6	0.4	3	6.9	16	16.8	6
Newfoundland.....	32.1	...	6.6	...	38	...	20	...	0.5	...	6.8	...	25.5	...
Prince Edward Island.....	27.6	...	9.1	...	21	...	13	...	1.0	...	6.4	...	18.5	...
Nova Scotia.....	25.1	...	8.4	...	27	...	17	...	0.1	...	6.8	...	16.7	...
New Brunswick.....	25.7	...	7.8	...	28	...	18	...	0.4	...	7.2	...	17.9	...
Quebec.....	24.4	...	7.0	...	30	...	21	...	0.5	...	6.8	...	17.4	...
Ontario.....	24.1	...	8.3	...	23	...	17	...	0.3	...	7.0	...	15.8	...
Manitoba.....	23.9	...	8.3	...	25	...	15	...	0.4	...	7.0	...	15.6	...
Saskatchewan.....	25.2	...	8.0	...	27	...	17	...	0.3	...	6.6	...	17.2	...
Alberta.....	27.4	...	6.7	...	24	...	17	...	0.3	...	7.2	...	20.7	...
British Columbia.....	22.1	...	8.9	...	23	...	16	...	0.3	...	6.9	...	13.2	...
Yukon Territory.....	33.3	...	5.4	...	32	...	14	...	—	...	6.3	...	27.9	...
Northwest Territories.....	48.4	...	11.1	...	104	...	46	...	0.9	...	5.8	...	37.3	...
Ceylon.....	35.8 ⁵	3	8.0 ⁵	5	52 ⁵	16	34 ⁶	14	2.6 ⁵	12	6.0 ⁵	20	27.8 ⁵	3
Chile.....	34.24	4	11.84	22	117 ⁵	22	37 ⁵	17	3.2 ⁵	13	6.9	16	22.44	4
Denmark.....	17.6	24	9.8	13	19	14	17 ⁵	5	0.25	1	8.3	6	7.8	21
England and Wales.....	18.2	22	12.2	23	21	6	14	3	0.3	2	7.5	12	6.0	25
Finland.....	18.1	23	9.3	11	18	3	15 ⁵	4	0.54	4	7.4	13	8.8	20
France.....	18.5	21	11.7	20	26	9	17	5	0.44	3	7.1	14	6.5	24
Germany, Federal Republic of.....	18.5	21	9.3 ⁵	11	27	10	20	8	0.94	7	8.8	4	7.1	23
India ⁷	21.0 ⁵	15	11.8	22	101	...	...	...	...	...	...	...	11.7 ⁵	15
Ireland.....	22.2	11	10.2	16	27	10	18	6	0.3	2	5.4	21	10.4	16
Italy.....	19.1	18	10.2	22	40	14	24 ⁸	10	1.15	8	8.4	5	8.9	19
Japan.....	17.3	26	7.0	7	23	17	14	3	1.25	9	9.8	2	10.3	17
Mexico.....	45.0	1	10.5	5	17	704	17	12	1.98	11	6.4	19	34.5	2
Netherlands.....	20.9	16	8.0	5	16	2	12	2	0.34	2	8.0	18	12.9	10
New Zealand.....	25.5	8	8.8	8	20	5	13 ⁴	2	0.34	2	7.8	10	16.7	7
Northern Ireland.....	23.1	9	11.0	19	27	10	19	7	0.4	3	7.0	15	12.1	13
Norway.....	17.5	25	10.0	14	184	3	12 ⁵	1	0.24	1	6.5	18	7.5	22
Peru.....	28.1 ⁵	5	8.5 ⁵	16	97 ⁵	21	35 ⁵	15	2.9 ⁵	23	19.6 ⁵	5	12.7	11
Portugal.....	23.5	8	10.8	18	73	18	284	13	1.24	9	7.9	9	12.7	11
Scotland.....	19.7	17	12.6	24	26	9	17	7	0.4	3	7.6	11	7.1	23
Spain.....	21.5	13	9.0	10	329	13	19 ⁹	7	0.75	6	7.6	11	12.5	12
Sweden.....	14.8	28	10.1	15	154	1	13 ⁵	2	0.25	5	6.9	16	4.7	26
Switzerland.....	18.9	19	9.6	12	214	6	17 ⁶	5	0.55	4	7.5	12	9.3	18
South Africa (Whites).....	23.5	8	8.9	9	29	12	19 ⁸	7	0.6 ⁸	5	8.9 ⁵	3	14.6	9
Union of Soviet Socialist Republics.....	22.44	10	7.54	3	324	13	18	6	0.4	4	10.04	1	14.94	8
United States.....	21.6	12	9.6	12	25	8	26 ⁸	11	1.14	3	8.8	3	12.0	14
Venezuela.....	42.84	2	6.74	1	42	15	38 ⁵	16	1.14	3	5.04	22	36.14	1
Yugoslavia.....	21.4	14	8.9	9	78	19	38 ⁵	16	1.4 ⁵	10	8.3	6	12.5	12

¹ Under 28 days unless otherwise stated.

² Per 1,000 live births.

³ Per 1,000 live birth.

⁴ 1962.

⁵ 1961.

⁶ 1959.

⁷ Registration only.

⁸ 1960.

⁹ Excluding children born alive but dead before registration of their birth.

¹ Under 28 days unless otherwise stated.

² Per 1,000 population.

³ Per 1,000 live births.

⁴ 1962.

⁵ 1961.

⁶ 1959.

⁷ Registration area only.

⁸ 1960.

⁹ Excluding children born alive but dead before registration of their birth.

CHAPTER VI.—PUBLIC HEALTH, WELFARE AND SOCIAL SECURITY*

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

Canada's growth as an industrial nation has created many new problems in the planning of health and welfare services. While a higher level of income and living standards lessens the danger of health impoverishment, changing social conditions resulting from general prosperity are forcing new priorities in health and welfare planning. With the continued influx of people to the cities, problems of adequate housing, recreation, health and welfare services for the aged and other aspects of community planning require more urgent consideration. At the same time, problems associated with the rendering of

* Except where otherwise indicated, this Chapter was prepared (August 1965) by the Research and Statistics Division of the Department of National Health and Welfare, Ottawa.

services to a proportionately decreasing rural population and to the sparsely settled northern expanses severely tax the available resources of health and welfare personnel and public health and public welfare administration.

During 1964-65, the Royal Commission on Health Services published the results of its enquiry into the present status of health services in Canada.* It declared that, for the nation to achieve its health goals, a universal, comprehensive, health services program should be available to all Canadians. The Federal Government, responding to this report, proposed in 1965 that a comprehensive medical care program be introduced. In opening a Federal-Provincial Conference in July 1965 the Prime Minister said that "Canadian attitudes and Canadian economic standards have now developed to the point at which we are ready to regard medicare as a part of Canada's basic social standards. It is now the responsibility of the Federal Government to co-operate with the provinces in making medicare financially possible for all Canadians". Earlier in the year (March) British Columbia had passed the Medical Grant Act and Ontario had passed (June) the Medical Services Insurance Act; both these Acts provide for provincial subsidies to assist residents with taxable incomes of less than \$1,000 a year in paying the premiums required to purchase medical care insurance from an approved medical insurance carrier.†

In November 1964, the Federal Government introduced a Bill "to establish a comprehensive program of old age pensions and supplementary benefits in Canada payable to and in respect of contributors". After second reading this Bill was referred to a Special Joint Committee of the Senate and House of Commons set up to study it. The Committee held 51 sittings from Nov. 24, 1964 to Feb. 8, 1965 and heard 116 witnesses. In its final report the Committee recommended a few changes in the Bill, most of which were accepted by the Government. The House of Commons debated the Bill from Feb. 22 to Mar. 29, and the Canada Pension Plan received Royal Assent on Apr. 3, 1965. Before the Bill was introduced, a series of meetings had been held between federal and Quebec officials from May to October 1964 in order to integrate the details of the Canada Pension Plan and the Quebec Pension Plan. The Quebec Pension Plan was assented to and became effective on July 15, 1965. The revised Ontario Pension Benefits Act, which regulates the operations of private pension plans in the province, was proclaimed on July 30, 1965.

With the April 1965 Throne Speech, Canada embarked on its own "War on Poverty", a program for the full utilization of human resources and the elimination of poverty. Included in the program will be an expansion of the Area Development Program (ADA) and the Agricultural Rehabilitation and Development Program (ARDA),‡ measures to assist the re-employment, relocation and retraining of workers, urban renewal measures, the establishment of a Company of Young Canadians to undertake projects for economic and social development in Canada and abroad, and the establishment of a Canada Assistance Plan. This last will be a companion to the Canada Pension Plan, designed to assist people now retired, disabled, widowed or otherwise in need who will not be able to participate in the contributory pension plan. Provincial programs for persons in need will be financially supported by federal cost-sharing arrangements.

During 1964-65, public and voluntary agencies and interested individuals were actively engaged in the preliminary work for the Canadian Conference on Aging, sponsored by the Canadian Welfare Council, to be held in January 1966 in Toronto. The Special Committee of the Senate on Aging, formed in 1963 to study various aspects of the needs of older people including their housing, health and institutional care, social services, community participation and recreation, held hearings from February 1964 into December 1964. The report of the committee was in preparation at the time of writing (August 1965).

Of particular interest in the area of family welfare was the Canadian Conference on the Family, convened by Their Excellencies, Governor General and Madame Vanier, and held in Ottawa in June 1964. The Conference recommended the formation of an Institute of the Family to stimulate and foster study of the family, to constitute a medium of continuous action in favour of the family, as well as a meeting ground and channel of commu-

*See also p. 286.

†See also p. 300.

‡See Chapter X on Land Use and Renewable Resource Development.

nication for groups and individuals actively concerned with the well-being of Canadian families. The Vanier Institute of the Family—L'Institut Vanier de la famille—was subsequently established and incorporated on Apr. 8, 1965.

PART I.—PUBLIC HEALTH

Provincial governments bear the major responsibility for health services in Canada, with the municipality often assuming considerable authority over matters delegated to it by provincial legislation. The Federal Government has jurisdiction over a number of health matters of a national character and provides important financial assistance to provincial health and hospital services. All levels of government are aided and supported by a network of voluntary agencies working in different health fields.

Section 1.—Federal Health Activities

The Department of National Health and Welfare is the chief federal agency in health matters but important treatment programs are also administered by the Departments of Veterans Affairs and National Defence. The Dominion Bureau of Statistics is responsible for collection, analysis and publication of national health statistics, the Medical Research Council and the Defence Research Board administer medical research programs, and the Department of Agriculture has certain health responsibilities connected with food production.

The Department of National Health and Welfare controls food and drugs, including narcotics, operates quarantine and immigration medical services, carries out international health obligations, and provides health services to Indians, Eskimos and other special groups. It advises on the visual eligibility of applicants for blindness allowances and co-operates with the provinces in the provision of surgical or remedial treatment for recipients of the allowances. Under the Public Works Health Act, supervision of health conditions is provided for persons employed on federal public works. Health counselling and medical supervision are provided for the federal Civil Service. The Department also administers the civil aviation medical program for the Department of Transport.

The Department serves the provinces in an advisory and co-ordinating capacity and administers grants to provincial health and national voluntary agencies. Administration of federal aspects of the Hospital Insurance and National Health Grant Programs has become a major activity during the past decade.

Co-ordination with the provinces on health matters is facilitated by the Dominion Council of Health, the principal advisory agency to the Minister of National Health and Welfare. Its membership includes the Deputy Minister of National Health, who acts as chairman, the chief health officer of each province, and five appointees of the Governor in Council. The Council meets semi-annually. Federal-provincial technical advisory committees of the Council deal with specific aspects of public health.

Subsection 1.—The Royal Commission on Health Services

Focusing on the theme that "all the fruits of the health sciences" should be made "available to all our residents without hindrance", the Royal Commission on Health Services, chaired by Chief Justice Emmett M. Hall of Regina and also including a nurse, a dentist, an economist, a financier and two physicians, brought out a two-volume report* in 1964 and 1965 setting out its findings and 256 detailed recommendations. Public hearings were conducted in every province, 406 briefs received and a number of special studies commissioned.

The terms of reference of the Hall Commission, as it became known, were to inquire into and report upon: methods for providing health services and their correlation and

* *Royal Commission on Health Services 1964—Vol. I.* \$10 and . . . *1965—Vol. II.* \$5. Queen's Printer (Catalogue Nos. Z1-1961/3-1 and Z1-1961/3-2, respectively).

improvement: personnel and training; physical plant; costs and methods of financing; medical research; priorities; and "such other matters as the Commissioners deem appropriate".

The central recommendation was that "comprehensive, universal, provincial programmes of personal health services, with similar arrangements for the Yukon and Northwest Territories" be introduced, covering medical services, prescription drug services, prosthetic services and home care services, as well as optical and dental services for recipients of public assistance and for children, and dental services for expectant mothers. It was also recommended that a Health Facilities Development Fund be set up to expand the physical plant of Canada's health industry, and that Professional Training Grants be offered to increase the number of trained personnel available.

Subsection 2.—National Health Grant Program

The National Health Grant Program, inaugurated in 1948, makes federal grants available to the provinces for the developing and strengthening of public health and hospital services. Changes were made over the years to provide additional funds, increase flexibility and meet changing circumstances. Some of the headings under which grants had been made were merged or discontinued and new headings were added (see Table 1). During the year ended Mar. 31, 1965, the following Health Grants were in force: Hospital Construction, Mental Health, Tuberculosis Control, Cancer, Medical Rehabilitation and Crippled Children, Professional Training, Public Health Research, Child and Maternal Health, and General Public Health.

Up to Mar. 31, 1965, aid for hospital construction had been approved for 117,015 beds and 14,901 bassinets for patients, 22,555 beds for nurses, and 918 beds for interns. Approximately 42,000 health workers had been trained or were undergoing special training, and more than 7,000 health workers were employed, with Health Grant assistance. The amount expended in 1964-65 totalled \$56,699,708 or 86 p.c. of the total available; over the entire 17 years of the program, 79 p.c. of the available money had been actually spent.

1.—Amounts Available and Amounts and Percentages Expended under the National Health Grant Program, by Grant, for the 17-year Period Ended Mar. 31, 1965 and for the Year Ended Mar. 31, 1965.

Grant	1948-65 Period			Year Ended Mar. 31, 1965		
	Amount Available ¹	Amount Expended	Percentage Expended	Amount Available ¹	Amount Expended	Percentage Expended
	\$	\$		\$	\$	
Crippled Children ²	6,207,728	4,431,677	71	—	—	—
Professional Training.....	15,554,573	14,364,320	92	2,176,229	1,933,446	89
Hospital Construction.....	238,678,896	216,323,305	91	26,994,404	21,612,346	80
Veneral Disease Control ³	5,968,336	5,146,209	86	—	—	—
Mental Health.....	118,532,369	98,592,944	83	9,219,922	8,667,072	94
Tuberculosis Control.....	66,159,029	61,260,592	93	3,614,167	3,392,810	94
Public Health Research.....	14,216,048	12,071,895	85	1,889,600	1,647,674	87
Health Survey ⁴	645,180	540,960	84	—	—	—
General Public Health.....	156,609,269	110,957,758	71	14,453,468	12,781,245	88
Cancer Control.....	60,335,567	43,824,956	73	3,269,914	2,890,943	88
Laboratory and Radiological Services ⁵	47,404,300	14,450,881	30	—	—	—
Medical Rehabilitation ⁶	6,500,000	3,016,750	46	—	—	—
Child and Maternal Health ⁷	20,202,394	14,156,269	70	1,702,394	1,409,162	83
Medical Rehabilitation and Crippled Children ⁸	13,610,695	8,673,078	64	2,910,695	2,465,006	85
Totals.....	770,624,386	607,811,598	79	66,230,795	56,699,708	86

¹ As set out in the General Health Grant Rules.

² Merged with Medical Rehabilitation Grant, Apr. 1, 1960.

³ Absorbed into General Public Health Grant, Apr. 1, 1960.

⁴ Lapsed in 1953.

⁵ Introduced in 1953 and merged

with Crippled Children Grant, Apr. 1, 1960.

⁷ Introduced in 1953.

⁸ Introduced in 1960; see footnotes

² and ⁶.

Subsection 3.—Hospital Insurance

The federal-provincial hospital insurance program, now established in all provinces and territories, covers 98.4 p.c. of the total population of Canada. This program was introduced under the federal Hospital Insurance and Diagnostic Services Act of 1957, by which the Federal Government shares with the provinces the costs of specified hospital services to insured patients. The choice of methods of financing and administering the program at the provincial level, and the choice of the types of service offered above the minimum stipulated in the Act, rest with provinces.

Federal legislation covers only services in institutions approved to provide acute, chronic and convalescent care. Tuberculosis and mental hospitals are excluded from the federal-provincial plan, as are institutions providing custodial care. However, the psychiatric and tuberculosis units of general hospitals are included.

The basic range of in-patient benefits that, under the Act, each province is required to provide includes standard ward accommodation and meals, nursing service, drugs and biologicals, surgical supplies, the use of operating and case rooms, diagnostic procedures (including X-ray and laboratory procedures) together with necessary medical interpretations, and the use of radiotherapy and physiotherapy facilities where available. The same benefits for out-patients, although authorized for assistance under the federal legislation, are not mandatory upon provincial plans. All provinces except one provide, under the plan, insured out-patient services. The pattern varies from province to province but among the services offered are emergency care following accidents, diagnostic services and therapeutic services, including minor surgical and medical procedures. Some provinces provide certain psychiatric out-patient services.

Provinces use different methods of administering and financing their programs; money raised through general revenues, provincial sales taxes and personal premiums may be used separately or in combination.* The Federal Government pays each province 25 p.c. of the per capita cost of in-patient services in Canada as a whole plus 25 p.c. of the per capita cost of in-patient services in the province, multiplied by the average for the year of the number of insured persons in the province. On a national basis, the federal contribution amounts to about 50 p.c. of sharable costs. However, for individual provinces the proportion of sharable costs met by the Federal Government varies, with a higher proportion of the cost of low-cost programs than of high-cost programs being met. Federal payments to the provinces under the program from July 1, 1958 to Dec. 31, 1964 totalled over \$1,700,000,000. During 1964, federal payments to the individual provinces and territories totalled \$408,000,000, divided as follows: Newfoundland, \$9,200,000; Prince Edward Island, \$2,000,000; Nova Scotia, \$15,500,000; New Brunswick, \$13,000,000; Quebec, \$117,200,000; Ontario, \$144,500,000; Manitoba, \$20,000,000; Saskatchewan, \$22,200,000; Alberta, \$29,600,000; British Columbia, \$34,000,000; Yukon Territory, \$330,000; and the Northwest Territories, \$560,000.

Tables 2 and 3 give data for hospitals listed in the federal-provincial hospital insurance agreements. The bulk of the hospitals listed in those agreements are "budget review" hospitals, which are subject to provincial budget-approval. Budget review hospitals include publicly owned general hospitals providing acute or short-term care and special hospitals such as pediatric, maternity, orthopedic and chronic hospitals. Also listed in the agreements are "contract" and federal hospitals. "Contract" hospitals are private and industrial hospitals that provide insured hospital care at a contractually agreed rate per patient day.

The 1,291 hospitals, in all three categories listed in the federal-provincial agreements, reported having a total of 129,158 beds and cribs set up at the end of 1963, a rate of 6.8 beds per thousand population. Provincial rates ranged from 5.0 in Newfoundland to 8.6

* Hospital insurance is financed in the following ways: (1) general revenues only—Quebec, Newfoundland, Prince Edward Island, New Brunswick, Yukon Territory and the Federal Government; (2) general revenues plus a daily charge at time of service—British Columbia, Alberta and the Northwest Territories; (3) sales tax only—Nova Scotia; (4) premiums, sales tax and other general revenues—Saskatchewan; and (5) premiums, with subsidies from general revenues—Ontario and Manitoba.

in Alberta, and territorial rates were even higher. The total number of patient-days per thousand population in 1963 also varied considerably from province to province; that for Canada was 1,993.4, considerably lower than those in Saskatchewan and Alberta but much higher than the rate in Newfoundland. In 1963, 90.1 p.c. of all patient-days in hospitals were paid for under the federal-provincial plan.

2.—Number of Beds and Crib in Hospitals Listed in Hospital Insurance Agreements, with Rate per 1,000 Population, by Province, as at Dec. 31, 1963

Province or Territory	No. of Hospitals Reporting	Beds and Crib	
		Number	Rate ¹
Newfoundland.....	45	2,403	5.0
Prince Edward Island.....	9	629	5.9
Nova Scotia.....	48	4,469	5.9
New Brunswick.....	40	4,008	6.5
Quebec.....	271	33,823	6.2
Ontario.....	318	44,965	7.0
Manitoba.....	104	6,951	7.3
Saskatchewan.....	159	7,769	8.3
Alberta.....	155	12,034	8.6
British Columbia.....	111	11,464	6.8
Yukon Territory.....	5	161	10.7
Northwest Territories.....	26	482	19.9
Canada.....	1,291	129,153	6.8

¹ Per 1,000 population; based on intercensal population estimates as at June 1, 1963.

3.—Total Patient-Days and Insured Patient-Days in Hospitals Listed in Hospital Insurance Agreements, with Rates per 1,000 Total and Insured Population, by Province, 1963.

Province or Territory	Hospitals Reporting	Total Patient-Days during Year		Insured Patient-Days during Year	
		Days	Rate ¹	Days	Rate ²
	No.	No.		No.	
Newfoundland.....	46	640,835	1,332.3	588,959	1,235.6
Prince Edward Island.....	9	175,540	1,640.6	165,890	1,640.6
Nova Scotia.....	48	1,240,149	1,640.4	1,118,554	1,467.9
New Brunswick.....	40	1,173,702	1,911.6	1,031,860	1,716.6
Quebec.....	271	10,084,795	1,844.3	9,247,563	1,567.4
Ontario.....	322	13,467,462	2,088.6	12,099,892	1,807.8
Manitoba.....	104	1,970,147	2,073.8	1,750,677	1,181.5
Saskatchewan.....	159	2,046,236	2,193.2	1,951,013	2,142.5
Alberta.....	155	3,374,968	2,402.1	3,116,612	1,979.7
British Columbia.....	111	3,392,515	2,001.5	2,808,885	1,652.5
Yukon Territory.....	5	26,626	1,775.1	20,126	257.5
Northwest Territories.....	26	74,145	3,089.4	42,596	413.0
Canada.....	1,296	37,667,120	1,993.4	33,942,627	1,718.9

¹ Per 1,000 total population; based on intercensal population estimates as at June 1, 1963.

² Per number of insured persons under provincial plans.

The operating cost of budget review hospitals in Canada in 1963, as shown in Table 4, including items of expense and costs of services not covered under the hospital insurance program, amounted to \$878,103,000. Salaries and wages accounted for 63.9 p.c. of that total; medical supplies for 3.1 p.c., drugs for 3.9 p.c., raw food for 5.6 p.c., other departmental supplies and expense for 16.2 p.c., and other expense items (consisting mainly of interest payments and depreciation allowances) for the remaining 7.4 p.c.

In 1963, the total per capita operating cost of budget review hospitals in Canada was \$46.47, ranging among the ten provinces from \$28.84 in Newfoundland to \$50.56 in Ontario. The provincial variations are due in part to differences in the number of patient-days per thousand population and in the range of hospital care that is provided.

4.—Revenue Fund Expenditures of Budget Review Hospitals, by Type of Account and by Province, 1963

Province or Territory	Departmental Expenditures						Total Revenue Fund Expense ²
	Salaries and Wages	Medical and Surgical Supplies	Drugs	Raw Food	Other Supplies and Expense ¹	Total Depart- mental Expense	
	AMOUNTS OF EXPENDITURES						
	\$	\$	\$	\$	\$	\$	\$
Newfoundland.....	7,112,143	528,422	877,740	1,539,094	3,027,005	13,084,404	13,871,005
Prince Edward Island..	1,944,011	121,433	136,830	282,734	727,557	3,212,565	3,591,564
Nova Scotia.....	17,275,670	935,268	1,151,054	2,126,691	6,591,862	28,080,545	30,366,474
New Brunswick.....	16,733,474	947,734	1,161,546	1,846,658	5,253,745	25,943,157	28,998,366
Quebec.....	157,947,339	7,522,880	10,039,498	13,746,685	37,694,132	226,950,534	247,140,470
Ontario.....	212,196,428	10,123,203	12,164,809	16,932,572	53,702,749	305,119,761	325,987,569
Manitoba.....	27,730,700	1,387,456	1,879,713	1,786,799	7,315,419	40,100,087	42,915,730
Saskatchewan.....	29,632,103	1,452,293	1,833,795	2,595,662	7,486,620	43,000,473	46,029,533
Alberta.....	40,360,953	1,995,671	2,294,032	4,445,901	8,894,626	57,991,183	64,752,983
British Columbia.....	49,521,945	2,293,048	2,694,830	3,918,354	11,135,171	69,563,348	73,998,737
Yukon Territory.....	97,972	3,036	10,718	17,195	37,145	166,066	175,085
Northwest Territories..	150,117	9,544	8,883	17,577	67,725	253,846	275,551
Canada.....	560,702,855	27,319,988	34,253,448	49,255,922	141,933,756	813,465,969	878,103,067
	EXPENDITURES PER PATIENT-DAY ³						
	\$	\$	\$	\$	\$	\$	\$
Newfoundland.....	11.97	0.89	1.48	2.59	5.09	22.01	23.34
Prince Edward Island..	11.07	0.69	0.78	1.61	4.14	18.30	20.46
Nova Scotia.....	15.57	0.84	1.04	1.92	5.94	25.30	27.36
New Brunswick.....	15.88	0.90	1.10	1.75	4.98	24.61	27.51
Quebec.....	18.43	0.88	1.17	1.60	4.40	26.48	28.84
Ontario.....	18.20	0.87	1.04	1.45	4.61	26.18	27.97
Manitoba.....	16.09	0.80	1.09	1.04	4.24	23.26	24.89
Saskatchewan.....	15.07	0.74	0.93	1.32	3.81	21.87	23.41
Alberta.....	14.51	0.72	0.82	1.60	3.20	20.85	23.28
British Columbia.....	17.68	0.82	0.96	1.40	3.98	24.83	26.42
Yukon Territory.....	25.36	0.79	2.77	4.45	9.62	42.99	45.32
Northwest Territories..	15.14	0.96	0.90	1.77	6.83	25.61	27.80
Canada.....	17.28	0.84	1.06	1.52	4.37	25.07	27.06
	EXPENDITURES PER CAPITA ⁴						
	\$	\$	\$	\$	\$	\$	\$
Newfoundland.....	14.79	1.10	1.82	3.20	6.29	27.20	28.84
Prince Edward Island..	18.17	1.13	1.28	2.64	6.80	30.02	33.57
Nova Scotia.....	22.85	1.24	1.52	2.81	8.72	37.14	40.17
New Brunswick.....	27.25	1.54	1.89	3.01	8.56	42.25	47.23
Quebec.....	28.89	1.38	1.84	2.51	6.89	41.51	45.20
Ontario.....	32.91	1.57	1.89	2.63	8.33	47.32	50.56
Manitoba.....	29.19	1.46	1.98	1.88	7.70	42.21	45.17
Saskatchewan.....	31.76	1.56	1.97	2.78	8.02	46.09	49.33
Alberta.....	28.73	1.42	1.63	3.16	6.33	41.27	46.09
British Columbia.....	29.22	1.35	1.59	2.31	6.57	41.04	43.66
Yukon Territory.....	6.53	0.20	0.71	1.15	2.48	11.07	11.67
Northwest Territories..	6.25	0.40	0.37	0.73	2.82	10.58	11.48
Canada.....	29.67	1.45	1.81	2.61	7.51	43.05	46.47

For footnotes, see end of table.

4.—Revenue Fund Expenditures of Budget Review Hospitals, by Type of Account and by Province, 1963—concluded

Province or Territory	Departmental Expenditures						Total Revenue Fund Expense ²
	Salaries and Wages	Medical and Surgical Supplies	Drugs	Raw Food	Other Supplies and Expense ¹	Total Depart- mental Expense	
	PERCENTAGE DISTRIBUTION OF EXPENDITURES						
Newfoundland	51.3	3.8	6.3	11.1	21.8	94.3	100.0
Prince Edward Island ..	54.1	3.4	3.8	7.9	20.3	89.4	100.0
Nova Scotia	56.9	3.1	3.8	7.0	21.7	92.5	100.0
New Brunswick	57.7	3.3	4.0	6.4	18.1	89.5	100.0
Quebec	63.9	3.0	4.1	5.6	15.3	91.8	100.0
Ontario	65.1	3.1	3.7	5.2	16.5	93.6	100.0
Manitoba	64.6	3.2	4.4	4.2	17.0	93.4	100.0
Saskatchewan	64.4	3.2	4.0	5.6	16.3	93.4	100.0
Alberta	62.3	3.1	3.5	6.9	13.7	89.6	100.0
British Columbia	66.9	3.1	3.6	5.3	15.0	94.0	100.0
Yukon Territory	56.0	1.7	6.1	9.8	21.2	94.8	100.0
Northwest Territories ..	54.5	3.5	3.2	6.4	24.6	92.1	100.0
Canada	63.9	3.1	3.9	5.6	16.2	92.6	100.0

¹ Includes fuel, electricity, water, insurance, replacements of bedding and linen, laundry supplies, housekeeping supplies, repairs to buildings, furniture and equipment, maintenance of physical plant, and office supplies and services.

² Includes other revenue fund expense.

³ Based on patient-days during year for adults and children.

⁴ Based on intercensal population estimates as at June 1, 1963.

Subsection 3.—Food and Drug Control

The Food and Drugs Act is a federal statute with provisions applying to the manufacture, advertising, packaging and sale of foods, drugs, cosmetics and medical devices anywhere in Canada. Wide powers are authorized under this legislation to maintain the safety, purity and quality of food and drug products and to prevent misrepresentation in labelling and advertising. There are prohibitions, for example, on the sale of food or drugs that do not meet prescribed standards, are harmful, adulterated, dirty, improperly stored, or manufactured under unsanitary conditions. The Act also prohibits the advertising of any food, drug, cosmetic or medical device as a preventive or cure for a number of serious diseases and also lists drugs that may be sold only by prescription.

Standards of safety and purity are maintained through constant and widespread inspection and laboratory research. The inspection of food-manufacturing establishments assures the production of clean, wholesome foods containing ingredients that meet recognized standards. Changing food technology requires the development of methods of laboratory analysis to assure the safety of new types of ingredients and packaging materials. The Food and Drug Regulations were amended in 1964 by the addition of sections listing chemical additives that may be used in foods, the amounts that may be added to each food and the underlying reason. The effect of new packaging and processing techniques on the bacteria associated with food spoilage is another matter of special concern. Since the Food and Drugs Act is intended for the protection of consumers, a section of the Food and Drug Directorate obtains consumer opinions, deals with individual consumer complaints and provides sound information on which consumers may base opinions.

Drug standards are subject to continuous review and testing. Detailed information on all new drugs must be reviewed by the Directorate to determine compliance with requirements before release for sale is permitted. In 1963 important regulations were issued, one setting standards operative in all drug manufacturing facilities and the second prescribing additional safeguards in the distribution of investigational drugs. Drug manufacturing requirements relate to sanitation of facilities, employment of qualified personnel,

testing to ensure standards of quality and safety at stated stages of processing, maintenance of records of testing performance, together with a system of control to enable a complete and rapid recall of any lot or batch of drugs from the market. The new controls over clinical trials and marketing of new drugs carry out provisions of the Food and Drugs Act amendment passed in 1962. Detailed information must be submitted to the Directorate concerning the method of manufacture, the tests applied to establish standards of safety and quality, and substantial evidence of the clinical effectiveness of the new drug for the purposes stated. Samples of the final product must also be submitted. Before putting a product into clinical testing, a manufacturer also must file complete data on the experience with the drug including any evidence of adverse side effects, and the qualifications of the persons to be engaged in its experimental use. If from this evidence a new drug is considered not in the interest of public health, the Minister may suspend the proposed clinical testing, in which case the manufacturer has the right to appeal the decision. Drugs expressly prohibited from sale are thalidomide and lysergic acid diethylamide, except under certain conditions as specified in the regulations, whereby sale by a manufacturer to an institution for clinical use or laboratory research by qualified investigators may be approved by the Minister. Any drug that can be classed as a sedative, hypnotic or tranquillizer is listed to be sold only on prescription. The licensing of persons dealing in certain drugs classed as barbiturates and amphetamines is required as well as the keeping of special records and the limitation of their use to medical purposes.

The Food and Drug Directorate also administers the Proprietary or Patent Medicine Act, which is concerned with the registration before marketing and the annual licensing of secret-formula medicines sold under proprietary or trade names.

Early in 1965 the Directorate initiated an adverse-drug-reaction reporting program in 16 teaching hospitals across Canada to recognize and investigate unexpected reactions to drugs. The co-operation of the medical, dental, veterinary and pharmaceutical professions was solicited in advising the Directorate of such reactions in private practice. Close liaison is maintained with the World Health Organization and other authorities in foreign countries for the prompt reporting of such reactions.

Regulation of the supply and use of narcotic drugs is carried out under the Narcotic Control Act, as revised in 1961. This legislation prescribes a maximum penalty of seven years with no minimum for illegal possession; a maximum penalty for trafficking of life imprisonment; and minimum and maximum penalties for illegal export and import of seven years and life imprisonment, respectively. Persons convicted of offences under the Act who are found to be drug addicts may be sentenced for treatment, for an indeterminate period, in institutions operating under the penitentiaries system and the National Parole Board service, when Part II of the Act comes into force.

Subsection 5.—Medical Services

The Department of National Health and Welfare provides nine types of direct medical service through the Directorate of Medical Services. These are described in the following paragraphs.

Indians and Eskimos.—Responsibility for the general welfare, education and medical care of Indians is shared with the Indian Affairs Branch of the Department of Citizenship and Immigration, and of Eskimos with the Department of Northern Affairs and National Resources. The Department of National Health and Welfare provides medical and public health services to registered Indians or Eskimos who are not included under provincial arrangements and who are unable to provide for themselves. A large volume of the service in treatment and health education is rendered to patients through departmental out-patient clinics staffed by medical and other public health personnel. In remote areas, the key facility is frequently the departmental nursing station, a combined emergency treatment and public health unit having two to four beds under the direction of one or two nurses: about 44 of these are operated throughout Canada.

Wherever practicable, there has been an increasing integration of Indians into provincial and municipal health agencies. The Department correspondingly reduces the number of hospitals and other facilities provided specifically for Indians. At present, the Department maintains 18 hospitals at strategic points and co-operates elsewhere with community, mission or company hospitals. Indians are now included under all provincial prepaid insurance plans for hospital care and other forms of insured medical care but in almost all cases the total cost of mental and tuberculosis care is directly borne by the Federal Government. Indian and Eskimo health workers are trained to give instruction in health care and sanitation.

Northern Health.—Because of the special problems in developing health services in the Far North, the Directorate of Medical Services has been given the responsibility of co-ordinating federal and territorial health care for all residents. In so doing, the Department undertakes the functions of a health department for the Council of the Northwest Territories and assists the territorial government of the Yukon Territory to provide certain health services. Close liaison is maintained with the federal departments directly responsible for administrative matters affecting these areas.

In the Yukon Territory, services for the total population administered through the Commissioner for the Yukon and provided on a cost-sharing basis with the Department of National Health and Welfare include complete treatment for tuberculosis, payment for services rendered at the Alberta cancer clinics, mental hospital care through arrangements with the Province of British Columbia, and medical care for indigent patients. Public health nursing services, measures for control of communicable diseases, and administration of the principal public hospital are primarily the responsibility of the Medical Services of the Department of National Health and Welfare. Similar services are provided in the Northwest Territories, the costs being shared by the Department of Northern Affairs and National Resources and the Department of National Health and Welfare. Indigent residents are eligible for medical, dental and optical services as well as for tuberculosis and mental care.

Sick Mariners.—The Department of National Health and Welfare provides compulsory prepaid medical, surgical, hospital and other treatment services to crew members of all foreign-going ships arriving in Canada and Canadian coastal vessels in interprovincial trade, and provides medical, surgical and treatment services on an elective basis to crew members of Canadian fishing and government vessels. Canadian seamen obtain their hospital care under the provincial hospital insurance plans.

Leprosy.—Since 1960, isolation and treatment of persons suffering from leprosy have been arranged in their home neighbourhoods. Under the provisions of the Leprosy Act, facilities for the diagnosis and treatment of leprosy are provided in a six-bed unit of the Hôtel-Dieu Hospital at Tracadie, N.B.

Quarantine.—Under the Quarantine Act, all vessels, aircraft and other conveyances together with their crew members and passengers arriving in Canada from foreign countries are inspected by the quarantine officers to detect and correct conditions that could lead to the entry into Canada of such diseases as smallpox, cholera, plague, yellow fever, typhus and relapsing fever. Fully organized quarantine stations are located at all major seaports and airports.

Immigration.—Under the Immigration Act and the Department of National Health and Welfare Act, the Immigration Medical Service conducts in Canada and other countries the medical examination of all applicants for immigration to Canada and also provides treatment for certain classes of persons after arrival in Canada, including immigrants who become ill en route to their destination or while awaiting employment.

Civil Service Health Counselling.—Health counselling is offered through major Medical Services units to federal employees throughout the country. This service is primarily diagnostic and advisory only but emergency treatment can also be given. The Civil Service Health Counselling Division also examines civilian aviation personnel and advises on standards of physical fitness required for them.

Aerospace Medicine.—Research on civil aerospace medicine is conducted by the Department in close liaison with the National Research Council, the Defence Research Board and the Royal Canadian Air Force Institute of Aviation Medicine.

Regulation of Hygienic Standards.—The Department of National Health and Welfare is responsible for regulating hygienic standards on federal property.

Subsection 6.—Radiation Protection

A comprehensive radiation protection program has been developed in Canada in response to the rapidly increasing use of radioactive materials, X-ray equipment and nuclear reactors in medicine, industry and research, and to increasing concern about radiation from atmospheric testing of nuclear weapons, from medical X-ray procedures and from natural sources.

Because of technical complexity in this new field and the early necessity of imposing national controls over dealings with uranium and by-product materials, the Federal Government has developed health and safety control procedures for the handling and use of all radioactive materials. This program is implemented through the close collaboration of federal and provincial health departments supported by special advisory committees.

Acting under the federal Atomic Energy Control Regulations, the Department of National Health and Welfare reviews all applications received for radioisotope licences and recommends appropriate health and safety conditions. The Department also provides services for measuring and recording the personal radiation exposures of workers handling X-ray, gamma-ray and neutron sources. Inspection of licensed establishments is carried out by federal or provincial inspection officers. Although there is no federal regulatory authority to provide health and safety supervision over the use of X-rays, the Department of National Health and Welfare has established a committee on the development of X-ray safety standards to recommend uniform standards and procedures throughout Canada. Five provinces (Nova Scotia, Quebec, Ontario, Saskatchewan and Alberta) have already enacted specific enabling legislation applicable to X-rays, and two (Nova Scotia and Saskatchewan) have issued regulations requiring registration of operators and/or equipment. The Department's personnel-radiation-monitoring service is available to X-ray workers and its reports are available to the appropriate provincial departments of health.

As a supplement to its monitoring and inspection activities, the Department of National Health and Welfare provides short-term training courses in radiation protection for those persons assigned local responsibility for day-to-day operations.

Special attention is given to the health and safety problems associated with the siting, design, construction and operation of nuclear reactors and charged-particle accelerators. Committees of the Atomic Energy Control Board, including federal and provincial representatives, review these matters.

A comprehensive nation-wide monitoring program has been developed to assess the exposure of the public to radiation from radioactive fallout from nuclear-weapons testing. The Department is assisted in the systematic collection of samples of air, precipitation, soil, wheat, milk and human bone by the Departments of Transport and Agriculture and pathologists in hospitals throughout Canada. Monthly reports of the concentration of such fallout components as strontium-90 and cesium-137 in these samples are published. Because of a unique food-chain cycle in the Far North, a special study of cesium-137 in the North has been added to the nation-wide program. Direct measurements of cesium-137 levels in living persons are made with a high-sensitivity detection system known as a

"whole-body counter". This system is also used in the follow-up of radiation workers whose bodies may have been exposed to internal contamination from leaky radioactive sources or as a result of an accident.

The Department of National Health and Welfare and the Ontario Department of Health also conduct a joint environmental monitoring program around nuclear reactor sites to ensure that the operation of the reactor does not result in the gradual build-up of radioactive contamination to levels of significance to the health of the people in that community.

Subsection 7.—Health Research and International Health

Health Research.—Health research in Canada is carried on in universities, hospitals, research institutes and government departments. In the universities, relevant research is done by departments of basic medical sciences, medical and public health schools or faculties and by such departments as genetics and psychology as well as in special departments or institutes of research (see also Chapter VIII, Sect. 4, Subsect. 3). Hospitals used for teaching medical students also carry on considerable research, as do some of the larger non-teaching hospitals and mental institutes.

The Department of National Health and Welfare, the Medical Research Council, the Department of Veterans Affairs and the Defence Research Board support extensive programs of research. Other important research centres include the Connaught Medical Research Laboratories, the Banting Research Foundation, the Charles H. Best Institute, the Institute of Microbiology and Hygiene, the Allan Memorial Institute and the Montreal Neurological Institute. Some non-governmental or voluntary agencies concerned with health generally, or with specific diseases, encourage and support research by various means including financial assistance.

International Health.—Canada actively assists and co-operates with the World Health Organization and the other specialized agencies of the United Nations whose programs have a substantial health component or orientation. Capital and technical assistance are provided to underdeveloped countries through the Colombo Plan and other bilateral aid programs. Health training is provided for a number of persons coming to Canada each year under the different technical co-operation schemes (see p. 164 and pp. 171-174); during 1964, 64 trainees arrived, bringing the total number of trainees in Canada during the year to 212. These persons were working in a wide range of health disciplines under the External Aid Program.

Canadian experts in health legislation, health administration and related areas undertook specific assignments abroad during the year and specialists in a number of clinical fields were provided in response to requests from the developing countries. Capital assistance, primarily through the provision of cobalt beam therapy units for cancer treatment centres in the Colombo Plan area, was continued.

At the Sixteenth World Health Assembly in May 1962, Canada was elected to name a person to serve for a three-year term on the Executive Board of the World Health Organization and in 1963 this officer was appointed Chairman of the Board. Canada's term of office on the Executive Board of UNICEF commenced at the beginning of 1962 and similarly extends over a three-year period.

To carry out Canada's obligations under the International Sanitary Conventions, the Department of National Health and Welfare maintains quarantine measures for ships and aircraft entering Canadian ports and provides accommodation and necessary medical care for persons arriving in Canada who require quarantine (see p. 293).

The Department is responsible for the enforcement of requirements governing the handling and shipping of shellfish under the International Shellfish Agreement between Canada and the United States and, at the request of the International Joint Commission, participates in studies connected with control of pollution of boundary waters between Canada and the United States as well as with problems caused by atmospheric pollution.

Other international health responsibilities include the custody and distribution of biological, vitamin and hormone standards for the World Health Organization and certain duties in connection with the Single Convention on Narcotic Drugs, 1961, and Canada's representation on the Narcotic Commission of the United Nations.

Section 2.—Provincial and Local Health Services

Provincial and local health services may be grouped into several broad categories: general public health services, primarily of a preventive nature; services for specific diseases or disabilities combining prevention and treatment; services related to general medical and hospital care; and services for disabled and chronically ill persons.

Subsection 1.—General Public Health Services

Provincial and local governments co-operate closely in providing community public health services. The autonomy of the provinces and their social, economic and geographic diversity make for some variety in legislative provisions, in financial arrangements and in the detailed division of functions between provincial health departments and local and voluntary agencies. Each province, however, offers all or nearly all of a basic range of public health services, which includes environmental health, occupational health, communicable disease control, maternal and child health, dental health, nutrition, health education and public health laboratories.

Environmental Health.—The control of factors in the environment that are harmful to physical health is a rapidly expanding area of public health activity. Much of the work in community sanitation involves traditional inspection duties essential to the maintenance of pure milk, water and food supplies, disposal systems and provision of sanitary conditions in public areas. Increasing industrialization and urbanization, however, have both magnified the old problems and imposed new responsibilities. Air pollution, water pollution, radiation exposure and the use of pesticides are emerging as major environmental problems, necessitating the co-operative efforts of governments and other agencies in research and in planning effective control measures.

Occupational Health.—Services designed to prevent accidents and occupational diseases and to maintain the health of employees are the common concern of provincial health departments, labour departments, workmen's compensation boards and industry management. Provincial agencies regulate working conditions and offer consultant and educational services to industry. All provinces have legislation (Factory Acts, Shop Acts, Mines Acts, Workmen's Compensation Acts) setting health safety standards for employment.*

Communicable Disease Control.—There are separate divisions of epidemiology or communicable disease control in six provinces; in the other provinces these functions are handled by other provincial medical consultants. Local health authorities undertake case-finding and diagnostic services in co-operation with public health laboratories, carry out epidemiological investigations and often participate in tuberculosis and venereal disease control measures. All provincial health departments organize immunization programs for the public against diphtheria, tetanus, poliomyelitis, whooping cough and smallpox. Through agreement with the Federal Government, live oral poliovirus vaccine (Sabin) as well as Salk vaccine is made available by provincial health departments for immunization against poliomyelitis. Other agents such as gamma globulin may be provided under certain conditions for protection against measles and infectious hepatitis.

Maternal and Child Health.—Most provincial health departments have maternal and child health divisions under medical direction or have made other administrative arrangements to provide consultant services in this field. In addition, six of the provinces have consultant nursing services within these divisions. Provincial divisions provide advisory

*See Chapter XVIII, Section 1, Subsection 2, for provincial labour legislation.

services to local health departments and to hospitals, conduct studies of local problems and needs, and assist in the training of health personnel. Through local health departments conducting generalized public health programs, maternal and child health services are available to a high proportion of the population. The basic staff consists of a medical officer of health, public health nurses and sanitation inspectors. Programs and services for mothers and children may include prenatal education, home visiting, child health conferences and school health services. Other health personnel—dentists, nutritionists, health educators and social workers—share interests in the promotion of family health.

Dental Health.—All provincial health departments have dental health divisions that administer programs varying under local conditions but directed almost entirely to health education and the care of children. Training of dentists and dental hygienists in public health, the operation of children's preventive and treatment clinics, and health education are primary concerns in all provinces. Water fluoridation projects involving a total of 4,050,100 people are in operation in eight provinces and in the Northwest Territories. Four provinces—Alberta, Manitoba, Ontario and Nova Scotia—have set up, in conjunction with their dental schools, special courses for dental hygienists. In all ten provinces clinical care is provided for children in remote rural areas. A locally sponsored plan in which the cost of dental services for children is shared by the community and the provincial health department is in operation in more than 90 communities in British Columbia.

Nutrition.—Services include technical guidance, education, consultation and research. In some provinces, school lunch programs are sponsored and dietary supplements distributed. Five provinces have special nutrition divisions; in other provinces, consultants in nutrition function under a broader grouping of departmental services.

Health Education.—A basic concern of provincial health authorities is to stimulate public interest in important health needs, and in most provincial health departments a division of health education is established for this purpose, directed by a full-time professional 'health educator'. The division may also provide consultative services to the management of the department, to local health authorities and to voluntary associations.

Public Health Laboratories.—The public health laboratory was one of the earliest provincial services developed to assist local public health departments in the protection of community health and the control of infectious diseases. Public health bacteriology (testing of milk, water and food supplies), diagnostic bacteriology and pathology are the principal functions of the laboratory service, with medical testing for physicians and hospitals steadily increasing in volume. Efforts to co-ordinate public health and hospital laboratory services and measures to bring laboratory facilities to rural areas are among the recent developments.

Subsection 2.—Services for Specific Diseases or Disabilities

Mental Health.—Treatment programs for the mentally ill have centred mainly around three types of facilities: the mental hospital, the psychiatric unit in the general hospital and the organized community mental health clinic. These facilities, however, no longer have separate and distinct functions. New emphasis on the role of the community and its resources in the treatment and rehabilitation of the mentally ill is affecting the whole program of in-patient care. Utilizing the basic clinical facilities of general hospitals and mental hospitals, the community program is extending its scope and usefulness through the provision of day-care centres, sheltered workshops, half-way houses, and foster home and boarding home care. More than 60 general hospitals in Canada have organized psychiatric units, providing bed accommodation for more than 2,000 patients. Further planning in community-based services concerns the development of small regional psychiatric hospitals from which a comprehensive community program will emanate. Examples of this type are the new 150-bed hospital in Yorkton, Sask., a 68-bed psychiatric hospital in Selkirk, Man., and the developing community facilities for in-patient, out-patient and day care in Ottawa, Sudbury and Windsor, Ont.

Special centres for the assessment and diagnostic evaluation of mentally retarded children are also being developed. Day-training schools or classes for the trainable retarded, sponsored by some 250 local associations of parent groups forming the Canadian Association for Retarded Children, are now organized throughout the land.

Most public mental hospitals provide care and treatment for all types of mental illness. New programs of recreational and industrial therapy and enlarged and modernized clinical and surgical facilities are examples of widespread improvements in mental hospital care that particularly benefit patients undergoing active treatment. More recently, planning has been undertaken to reassess the status of the long-term chronically ill patient. Since 1961 new legislation governing the admission and care of the mentally ill has been enacted in four provinces—Saskatchewan, Alberta, British Columbia and Manitoba—designed to promote easier and more informal methods of admission and discharge and to establish machinery guaranteeing periodic review of the medical certification of long-term patients.

A great part of the cost of care in mental hospitals is borne by the provincial governments, although a charge, according to ability to contribute, may be made in some provinces. Newfoundland and Saskatchewan provide complete free care; Manitoba covers minimum maintenance costs for all patients; in Nova Scotia the provincial hospital gives free care to patients requiring active treatment; and in Ontario mental-institution treatment is included in the hospital care insurance plan.

Tuberculosis.—The fight against tuberculosis is one of the major programs of all health departments. Free hospitalization and free drug treatment, both on an in-patient and domiciliary basis, is provided. In two provinces extensive BCG programs are in effect and in the other provinces this prophylactic is provided to groups at special risk. Case-finding programs in the form of community tuberculin and X-ray surveys, surveys of high risk groups, and the follow-up of all arrested tuberculosis cases are routine. These activities have resulted in a decline in the Canadian tuberculosis death rate of 83 p.c. since 1951. In 1963 the rate was 3.6 per 100,000 population. The number of beds set up in public sanatoria declined from a peak of 18,977 in 1953 to fewer than 8,000 in 1964.

Cancer.—Health departments and lay and professional groups working for the control of cancer have been concerned mainly with four aspects of the problem—diagnosis, treatment, research and public education. In cancer detection and treatment, specialized medicine, hospital services and an expanding public health program are closely related. There are programs operating under health departments in four provinces; four others have provincially supported cancer agencies or commissions. These sponsor the work of diagnosis and treatment in special clinics, located usually within the larger general hospitals. Under the provincial hospital insurance plans, the benefits pertaining to in-patient care in the treatment of cancer are essentially similar in ten provinces and include such special services as diagnostic radiology, laboratory tests and radiotherapy. Similar services for out-patients are covered either by hospital insurance or by federal-provincial cancer control grants. Comprehensive free medical programs for cancer patients are in operation in Saskatchewan and Alberta and for cancer in-patients in New Brunswick.

Veneral Disease.—Free diagnostic and treatment services are available in all provinces but the operation of government clinics is being increasingly superseded by the method of supplying free drugs to private physicians who are reimbursed for treatment of indigents on a fee-for-service basis.

Alcoholism.—Ontario, Manitoba, Alberta and British Columbia carry out research and education programs and operate centres for treatment, supported largely by public funds. Ontario, Saskatchewan and Alberta also have rehabilitation programs for alcoholic inmates of reform institutions. Legislation in Newfoundland, New Brunswick, Nova Scotia and Quebec authorizes the setting up of similar agencies to initiate research and education studies in those provinces.

Other Diseases or Disabilities.—Services for persons with chronic disabilities, such as heart disease, arthritis, diabetes, visual and auditory impairments and paraplegia have been developed largely by voluntary agencies assisted by federal and provincial funds. (See also pp. 300-301.)

Subsection 3.—Public Medical Care

Saskatchewan and Alberta operate province-wide medical care insurance programs. About half the population of Newfoundland receives physicians' services at home or in hospital under the provincially administered Cottage Hospital Medical Care Plan which is financed in part on a premium basis. Medical indigents not under the Plan may also receive care at provincial expense. In addition, all Newfoundland children under the age of 16 years are entitled to free medical and surgical care in hospital.

For several years Nova Scotia, Ontario, Saskatchewan, Alberta, British Columbia and Manitoba have supported the cost of providing certain personal health care services for specified categories of persons in need and receiving public assistance. In British Columbia and Ontario the beneficiaries include recipients of needs- or means-tested old age security, old age assistance, blindness and disability allowances, mothers' allowances, certain child welfare cases and unemployed persons in need (unemployables only in British Columbia); dependants are also usually enrolled. Alberta covers similar categories of persons now qualifying under a provincial needs test. Nova Scotia covers mothers' allowance recipients and their dependants, and blindness allowance recipients. Saskatchewan covers recipients of supplemental allowance to either old age security pensions or blindness allowances, aid to dependent families and provincial short-term assistance; old age assistance recipients are enrolled by the province, for hospital care and medical care benefits only, through the provincial health insurance programs. Manitoba covers aged and infirm persons requiring custodial care, recipients of blind persons' allowances, recipients of mothers' allowances and their dependants, and child wards. In all provinces, indigent persons not covered by these programs may have necessary care financed by the municipalities in which they reside.

Under the Ontario program, the principal service covered is physicians' care in the home and office, including certain out-of-hospital minor surgical procedures and prenatal and postnatal care. Basic dental care is available to the children of mothers' allowance recipients. The programs in Nova Scotia, Saskatchewan, Alberta, British Columbia and Manitoba provide for complete medical care in the home, office and hospital. In addition, all commonly used prescription drugs are included in British Columbia, Manitoba and Saskatchewan (although these carry a 50-p.c. co-charge limitation to long-term assistance recipients in Saskatchewan for non-life-saving drugs where financial hardship is not demonstrated). Dental care and optical care are covered in the four westernmost provinces, sometimes only on special authorization and/or with dollar limits. Other services that may be provided in these provinces include diagnostic tests, appliances, physiotherapy, chiropody, chiropractic treatment, home nursing and transportation for medical reasons.

In Alberta, Saskatchewan, Manitoba and Nova Scotia, where provincial welfare recipients only are covered, health services for eligible persons are financed wholly from provincial general revenues. In British Columbia, costs are shared on a 90-10 basis, with the municipalities assuming their 10-p.c. share on a basis proportionate to population; in Ontario, per capita contributions toward the cost of medical services for unemployed on relief are shared on an 80-20 basis with the municipality of residence.

Since July 1962, every person who has resided in Saskatchewan for three months (and is not entitled to receive medical services under other public programs) and has paid, or has had paid on his behalf, the required premium, is entitled to have payment made on his behalf from the Medical Care Insurance Fund for medical, surgical and obstetrical care, without limit, in his home, in the doctor's office and in hospital, from his physician-of-choice (including payment at specialists' rates for referred specialists' services). There are no restrictions relating to age or pre-existing conditions. Physicians may elect to receive payment in a number of ways; usually they choose to receive direct

payment from the Medical Care Insurance Commission at 85 p.c. of the 1959 Schedule of Minimum Fees of the College of Physicians and Surgeons of Saskatchewan (as amended) as payment in full, or their patients enrol voluntarily with an approved health agency, which pays the physician an amount equal to the amount paid to the agency by the Commission in respect of the physician's assessed account. The Saskatchewan program is financed almost wholly from personal premiums plus general revenue contributions. In 1964, premiums accounted for 16 p.c. and general revenue contributions for 82 p.c. of the Commission's total receipts. There were more than 879,000 persons covered by the Saskatchewan Medical Care Insurance Act at the end of June 1964, or about 93 p.c. of the provincial population. Most of those not covered were protected under other public programs, both federal and provincial.

On Oct. 1, 1963, Alberta's medical care plan became effective. It is designed primarily to help residents with low incomes who voluntarily purchase medical care insurance from approved non-profit and commercial agencies. The approved carriers must make available to all residents, with no restrictions relating to age or pre-existing health conditions, a program of insurance that provides the attendance of physicians in home, office or hospital, as well as surgical, specialist and general diagnostic services. Maximum premium rates, set by the province, must not be exceeded. The plan is financed completely from personal premiums but there is provision for government subsidization of the premium costs of low-income persons. The subsidies are set up as flat rates but usually amount to 50 p.c. of the premium for persons with no taxable income and 25 p.c. for persons with taxable incomes of from \$1 to \$500. All residents may insure medical services either through the doctor-sponsored Medical Services (Alberta) Incorporated or through approved commercial agencies; doctors are re-imbursed at 90 p.c. of their assessed fees by the former and at 100 p.c. by the latter. In May 1965, some 831,000 persons were covered by the Alberta medical plan, 57 p.c. of the provincial population. Another 162,000 persons, 11 p.c. of the population, had coverage for comparable benefits under special programs.

The British Columbia legislature passed, in March 1965, a Medical Grant Act allowing the government to establish a medical insurance care plan similar to the one operating in Alberta, in that purchase of insurance is to be voluntary, maximum premiums will be set, and no person may be refused insurance because of age or health conditions. The government may share the premium costs of certain persons but, instead of setting out flat rates, it will pay one half of the premium of persons with no taxable income and one quarter of the premium of persons with taxable incomes of from \$1 to \$1,000. The plan is scheduled to take effect on Sept. 1, 1965.

The Ontario legislature passed, in June 1965, an Act to establish a plan of medical services insurance. Under the plan, maximum premiums will be set by the government and insurance will be available to all, with no exclusions because of age or pre-existing health conditions. The premium costs to certain individuals, to be specified in the regulations, will be totally subsidized by the government and the government will act as the insuring agency for those persons. Persons who are ill, disabled or unemployed and are unable to continue payment of their premiums may apply for assistance to maintain their medical services insurance. The plan is scheduled to take effect on June 1, 1966.

Subsection 4.—Services for the Disabled and Chronically Ill

The success of rehabilitation programs for injured workers, war veterans, handicapped children and other disability groups has encouraged more recent efforts to extend rehabilitation services to all handicapped persons. By 1964, physical medicine and rehabilitation departments were established in some 66 hospitals, including 13 children's hospitals, and in six veterans hospitals. Complementing these were 48 independent rehabilitation centres, including 27 children's centres and four workmen's compensation centres. Hospital services available to in-patients and out-patients include physical medicine, physiotherapy, occupational therapy and social services; most of the children's hospitals and the teaching hospitals also supply speech therapy. The rehabilitation centres provide com-

prehensive medical, psychosocial and vocational services to more severely disabled persons who require intensive or long-term therapy. In addition, the children's hospitals and centres operate special education classes. Community agencies such as those providing vocational rehabilitation services or home care co-operate in the rehabilitation of disabled children and adults.

Most large general hospitals conduct special out-patient clinics for disabilities such as arthritis and rheumatism, diabetes, glaucoma, speech and hearing defects, heart diseases, orthopedic and neurological conditions. Voluntary agencies, which are concerned with specific disability groups such as arthritics, the blind, the deaf, children suffering from cystic fibrosis, haemophilia or muscular dystrophy, the mentally ill or retarded, or disabled persons generally, are also broadening their rehabilitation services. These agencies provide such services as the supply of personal aids and appliances, employment and education, and sheltered workshops and also participate in the provision of services for the homebound. More than 100 sheltered workshops were in operation in 1964, serving persons with a wide range of handicapping conditions. Organized home care programs, under either hospital or community sponsorship, have been established in the principal cities, providing nursing, homemaker, physiotherapy and other services to the disabled, the chronically ill and the aged in their own homes. Several provincial health departments have instituted home nursing services to residents of outlying districts.

Provincial health departments and voluntary agencies are developing service programs for the treatment and rehabilitation of physically and mentally handicapped children. Most of them have established registries of handicapped children of varying coverage in co-operation with physicians, health units, hospitals and other agencies. Such registries, which are increasingly useful sources of morbidity statistics including congenital anomalies, assist in the planning and co-ordination of rehabilitation services. In addition to medical rehabilitation, programs for handicapped children usually include family counselling, recreation, transportation and foster home care; travelling clinics extend periodic diagnostic and treatment services to outlying areas. Special schools for various groups of handicapped children are established by local school boards in the main cities but most of the nine residential schools for the deaf and the six for the blind are operated by the provincial education departments.

The establishment of three regional prosthetic research and training units in rehabilitation centres in Montreal, Toronto and Winnipeg, supported by National Health Grants amounting to \$200,000 a year, is a significant development. These centres and several juvenile amputee clinics in other cities are rehabilitating children with limb deformities or amputations. A federal-provincial program assists in the extraordinary rehabilitation, maintenance and counselling costs on behalf of children with thalidomide-induced defects.

The Federal Government, through its National Health Grants (see p. 287), assists the provinces in their rehabilitation programs. These grants are used to develop medical rehabilitation services and facilities, to support the training of medical rehabilitation personnel (through grants to university schools and student bursaries), to provide equipment and to finance research.

Section 3. —Hospital and Other Health Statistics

Statistical information on the health of Canadians is at present limited to the well established and highly standardized mortality, communicable disease and institutional statistics series, all of which have been available for a long period, and the recently established series covering operations under the federal-provincial hospital insurance program (pp. 288-291). Much statistical information is also available from provincial and other health sources.

Statistics on causes of death are given in the Chapter on Vital Statistics, pp. 262-265; those on hospital statistics in Subsection 1 following; and those on notifiable diseases in Subsection 2.

Subsection 1.—Hospital Statistics*

Hospitals in Canada are classified in two ways for statistical purposes—first by ownership, i.e., public, private or federal, and second by type, i.e., general, allied special (including chronic, convalescent, rehabilitation, maternity, communicable diseases and orthopedic hospitals), mental and tuberculosis. In addition, general hospitals are grouped by size in accordance with their rated bed capacity.

In 1964 there were 1,349 hospitals operating in Canada, having a combined rated bed capacity (excluding bassinets) of 204,592 or the equivalent of 10.6 per 1,000 population. General hospitals accounted for 107,703 beds, allied special hospitals for 21,218, mental hospitals for 67,411 and tuberculosis sanatoria for 8,260. Among the provinces, the ratio of general hospital beds per 1,000 population ranged from 4.7 in Quebec to 7.2 in Saskatchewan.

* Prepared in the Institutions Section of the Health and Welfare Division, Dominion Bureau of Statistics. Detailed information will be found in the following DBS publications: *Hospital Statistics, Vols. I to VII* (Catalogue Nos. 83-210 to 83-216); *Mental Health Statistics, Vol. III* (Catalogue No. 83-205); *Tuberculosis Statistics, Vol. II* (Catalogue No. 83-207); and *List of Canadian Hospitals and Related Institutions and Facilities* (Catalogue No. 83-201).

5.—Number and Bed Capacity of Hospitals (Public, Private and Federal) Operating in Canada, by Province and Type, 1964

Province and Category	General and Allied Special								
	General			Allied Special			Totals, General and Allied Special		
	Hos- pitals	Beds	Beds per 1,000 Popu- lation ¹	Hos- pitals	Beds	Beds per 1,000 Popu- lation ¹	Hos- pitals	Beds	Beds per 1,000 Popu- lation ¹
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland—									
Public.....	32	2,408	4.9	13	168	0.3	45	2,576	5.2
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	1	35	0.1	—	—	—	1	35	0.1
Prince Edward Island—									
Public.....	8	696	6.5	1	30	0.3	9	726	6.8
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	—	—	—	—	—	—	—	—	—
Nova Scotia—									
Public.....	44	3,892	5.1	3	185	0.2	47	4,077	5.3
Private.....	2	16	—	—	—	—	2	16	—
Federal.....	3	610	0.8	—	—	—	3	610	0.8
New Brunswick—									
Public.....	35	3,384	5.5	4	197	0.3	39	3,581	5.8
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	1	400	0.6	—	—	—	1	400	0.6
Quebec—									
Public.....	121	24,157	4.3	36	6,326	1.2	157	30,483	5.5
Private.....	35	1,139	0.2	61	1,862	0.3	96	3,001	0.5
Federal.....	3	1,029	0.2	6	1,223	0.2	9	2,252	0.4
Ontario—									
Public.....	173	32,970	5.0	41	5,381	0.8	214	38,351	5.8
Private.....	19	739	0.1	27	627	0.1	46	1,366	0.2
Federal.....	6	3,624	0.6	6	180	—	12	3,804	0.6
Manitoba—									
Public.....	77	4,893	5.1	4	1,159	1.2	81	6,052	6.3
Private.....	6	87	0.1	1	50	0.1	7	137	0.2
Federal.....	4	738	0.8	11	44	—	15	782	0.8
Saskatchewan—									
Public.....	149	6,617	7.0	3	570	0.6	152	7,187	7.6
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	2	141	0.2	1	4	—	3	145	0.2

¹ Based on estimated population as at June 1, 1964.

5.—Number and Bed Capacity of Hospitals (Public, Private and Federal) Operating in Canada, by Province and Type, 1964—continued

Province or Territory and Category	General and Allied Special								
	General			Allied Special			Totals, General and Allied Special		
	Hos- pitals	Beds	Beds per 1,000 Popu- lation ¹	Hos- pitals	Beds	Beds per 1,000 Popu- lation ¹	Hos- pitals	Beds	Beds per 1,000 Popu- lation ¹
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Alberta—									
Public.....	106	8,238	5.7	26	2,358	1.7	132	10,596	7.4
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	3	111	0.1	3	12	--	6	123	0.1
British Columbia—									
Public.....	86	9,084	5.2	15	771	0.4	101	9,855	5.6
Private.....	5	76	0.1	—	—	—	5	76	0.1
Federal.....	7	2,102	1.2	—	—	—	7	2,102	1.2
Yukon and Northwest Territories—									
Public.....	10	254	6.2	—	—	—	10	254	6.2
Private.....	1	13	0.3	—	—	—	1	13	0.3
Federal.....	3	250	6.1	17	71	1.7	20	321	7.8
Canada—									
Public.....	841	96,593	5.0	146	17,145	0.9	987	113,738	5.9
Private.....	68	2,070	0.1	89	2,539	0.1	157	4,609	0.2
Federal.....	33	9,040	0.5	44	1,534	0.1	77	10,574	0.6
	Mental ²			Tuberculosis ³			Totals, All Hospitals		
Newfoundland—									
Public.....	1	826	1.7	1	278	0.6	47	3,680	7.5
Private.....	—	—	—	—	—	—	1	35	0.1
Federal.....	—	—	—	—	—	—	—	—	—
Prince Edward Island—									
Public.....	2	398	3.7	1	90	0.8	12	1,214	11.3
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	—	—	—	—	—	—	—	—	—
Nova Scotia—									
Public.....	10	2,879	3.8	2	460	0.6	59	7,416	9.7
Private.....	—	—	—	—	—	—	2	16	--
Federal.....	—	—	—	—	—	—	3	610	0.8
New Brunswick—									
Public.....	2	1,671	2.7	4	640	1.0	45	5,892	9.5
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	—	—	—	—	—	—	1	400	0.6
Quebec—									
Public.....	21	20,443	3.7	8	2,173	0.4	186	53,099	9.6
Private.....	—	—	—	1	25	--	97	3,026	0.5
Federal.....	—	—	—	—	—	—	9	2,252	0.4
Ontario—									
Public.....	24	22,207	3.4	12	2,501	0.4	250	63,059	9.6
Private.....	7	529	0.1	—	—	—	53	1,895	0.3
Federal.....	—	—	—	1	155	--	13	3,959	0.6
Manitoba—									
Public.....	3	3,553	3.7	3	484	0.5	87	10,089	10.5
Private.....	—	—	—	—	—	—	7	137	0.2
Federal.....	—	—	—	—	—	—	15	782	0.8
Saskatchewan—									
Public.....	4	3,529	3.7	2	319	0.4	158	11,035	11.7
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	—	—	—	—	—	—	3	145	0.2

For footnotes, see end of table, p. 304.

5.—Number and Bed Capacity of Hospitals (Public, Private and Federal) Operating in Canada, by Province and Type, 1964—concluded

Province or Territory and Category	Mental ²			Tuberculosis ³			Totals, All Hospitals		
	Hos- pitals	Beds	Beds per 1,000 Popu- lation ¹	Hos- pitals	Beds	Beds per 1,000 Popu- lation ¹	Hos- pitals	Beds	Beds per 1,000 Popu- lation ¹
Alberta—	No.	No.	No.	No.	No.	No.	No.	No.	No.
Public.....	7	5,067	3.6	2	562	0.4	141	16,225	11.4
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	—	—	—	1	480	0.3	7	603	0.4
British Columbia—									
Public.....	7	6,236	3.6	1	93	0.1	109	16,184	9.3
Private.....	1	73	—	—	—	—	6	149	0.1
Federal.....	—	—	—	—	—	—	7	2,102	1.2
Yukon and Northwest Territories—									
Public.....	—	—	—	—	—	—	10	254	6.2
Private.....	—	—	—	—	—	—	1	13	0.3
Federal.....	—	—	—	—	—	—	20	321	7.8
Canada—									
Public.....	81	66,809	3.5	36	7,600	0.4	1,104	188,147	9.8
Private.....	8	602	—	1	25	—	166	5,236	0.2
Federal.....	—	—	—	2	635	—	79	11,209	0.6

¹ Based on estimated population as at June 1, 1964.² Mental hospitals only; exclusive of psychiatric units in other hospitals.³ Tuberculosis hospitals only; exclusive of tuberculosis units in other hospitals.

Information concerning the number of hospitals operating and their bed capacities (Table 5) was available for 1964 at the time of preparation of this Subsection but the most recent figures available for Tables 6 to 16 were for 1963.

Aggregate estimated admissions of adults and children to all types of hospitals in 1963 numbered 3,090,048 or 164 per 1,000 population compared with 161 in 1962, and admissions to public general hospitals represented 89.7 p.c. of the total. On any particular day in 1963, there were 177,300 persons (adults and children) in Canadian hospitals compared with 172,900 in 1962. The occupancy rate in public general hospitals, at 81.4 p.c., was down slightly from the previous year and that in tuberculosis sanatoria continued its downward trend to 67.0 p.c. from 70.0 p.c. in 1962. The rate in mental hospitals, however, increased from 105.8 p.c. to 108.4 p.c. in the same comparison.

6.—Movement of Patients¹ and Patient-Days in Operating Public, Private and Federal Hospitals, 1959-63

NOTE.—Figures include estimates for non-reporting hospitals.

Type of Service and Item	1959	1960	1961	1962	1963
PUBLIC HOSPITALS					
General—					
Beds set up at Dec. 31.....	85,228	87,584	91,109	93,934	96,297
Admissions.....	2,450,825	2,529,949	2,646,022	2,682,310	2,771,403
Per 1,000 population ²	140.2	141.6	145.1	144.4	146.7
Patient-days.....	25,730,505	25,281,694	26,645,796	27,451,148	28,228,233
Per 1,000 population ²	1,471.7	1,414.8	1,461.0	1,478.3	1,493.9
Average daily number of patients.....	70,494.5	69,075.7	73,002.2	75,208.6	77,502.0
Per 1,000 population ²	4.0	3.9	4.0	4.1	4.1
Percentage occupancy ³	79.4	80.8	82.3	81.6	81.4

For footnotes, see end of table, p. 306.

6.—Movement of Patients¹ and Patient-Days in Operating Public, Private and Federal Hospitals, 1959-63—continued

Type of Service and Item	1959	1960	1961	1962	1963
PUBLIC HOSPITALS—concluded					
Allied Special—					
Beds set up at Dec. 31.....	15,274	12,163	12,382	14,317	16,116
Admissions.....	56,329	80,942	60,391	81,761	88,461
Per 1,000 population ²	3.2	4.5	3.3	4.4	4.7
Patient-days.....	4,804,270	3,962,356	3,851,799	4,548,374	4,967,046
Per 1,000 population ²	274.8	221.7	211.2	244.9	262.9
Average daily number of patients.....	13,162.4	10,826.1	10,552.9	12,461.3	13,608.3
Per 1,000 population ²	0.8	0.6	0.6	0.7	0.7
Percentage occupancy ³	86.7	91.1	89.4	86.8	84.3
Mental—⁴					
Beds set up at Dec. 31.....	66,806	69,554	74,916	68,967	69,822
Admissions.....	30,063	28,688	35,044	38,603	39,559
Per 1,000 population ²	1.7	1.6	1.9	2.1	2.1
Patient-days.....	24,415,818	24,952,589	24,761,125	24,079,059	24,404,858
Per 1,000 population ²	1,396.5	1,396.3	1,357.7	1,296.7	1,291.5
Average daily number of patients.....	66,892.7	68,176.5	67,838.7	65,970.0	66,862.6
Per 1,000 population ²	3.8	3.8	3.7	3.6	3.5
Percentage occupancy ³	110.4	107.2	101.4	105.8	108.4
Tuberculosis—⁵					
Beds set up at Dec. 31.....	10,753	10,494	9,583	8,856	7,592
Admissions.....	12,571	12,561	12,891	12,109	10,803
Per 1,000 population ²	0.7	0.7	0.7	0.7	0.6
Patient-days.....	3,131,830	2,978,494	2,617,612	2,365,743	1,963,849
Per 1,000 population ²	179.1	166.7	143.5	127.4	103.9
Average daily number of patients.....	8,580.4	8,138.0	7,171.5	6,481.5	5,380.4
Per 1,000 population ²	0.5	0.5	0.4	0.3	0.3
Percentage occupancy ³	77.4	76.7	70.6	70.0	67.0
PRIVATE HOSPITALS					
General—					
Beds set up at Dec. 31.....	1,966	2,146	1,968	1,839	2,100
Admissions.....	66,031	65,362	63,244	62,283	72,372
Per 1,000 population ²	3.8	3.7	3.5	3.4	3.8
Patient-days.....	520,288	482,863	471,918	510,896	593,112
Per 1,000 population ²	29.8	27.0	25.9	27.5	31.4
Average daily number of patients.....	1,425.4	1,319.3	1,292.9	1,399.7	1,625.0
Per 1,000 population ²	0.1	0.1	0.1	0.1	0.1
Percentage occupancy ³	72.9	67.1	71.5	76.9	78.0
Allied Special—					
Beds set up at Dec. 31.....	5,250	2,771	2,961	3,672	3,556
Admissions.....	35,100	19,783	17,874	21,541	16,433
Per 1,000 population ²	2.0	1.1	1.0	1.2	0.9
Patient-days.....	1,592,254	746,050	876,526	792,159	1,146,407
Per 1,000 population ²	91.1	41.7	48.1	42.7	60.7
Average daily number of patients.....	4,362.3	2,038.4	2,401.4	2,170.3	3,140.8
Per 1,000 population ²	0.2	0.1	0.1	0.1	0.2
Percentage occupancy ³	82.2	79.9	82.9	57.0	88.7
Mental—⁴					
Beds set up at Dec. 31.....	694	697	924	509	643
Admissions.....	2,860	4,543	5,984	3,823	3,953
Per 1,000 population ²	0.2	0.3	0.3	0.2	0.2
Patient-days.....	122,693	226,613	275,402	169,742	215,006
Per 1,000 population ²	7.0	12.7	15.1	9.1	11.4
Average daily number of patients.....	336.1	619.2	754.5	465.0	589.1
Per 1,000 population ²	--	--	--	--	--
Percentage occupancy ³	88.6	95.1	91.6	92.3	97.4

For footnotes, see end of table, p. 306.

6.—Movement of Patients¹ and Patient-Days in Operating Public, Private and Federal Hospitals, 1959-63—concluded

Type of Service and Item	1959	1960	1961	1962	1963
FEDERAL HOSPITALS					
General—					
Beds set up at Dec. 31.....	9,946	10,828	8,925	9,462	9,598
Admissions.....	87,651	84,531	82,055	86,571	83,343
Per 1,000 population ²	5.0	4.7	4.5	4.7	4.4
Patient-days.....	2,759,591	2,893,714	2,372,193	2,509,544	2,549,217
Per 1,000 population ²	157.8	161.9	130.1	135.1	134.9
Average daily number of patients.....	7,560.5	7,906.3	6,499.2	6,875.5	6,984.2
Per 1,000 population ²	0.4	0.4	0.4	0.4	0.4
Percentage occupancy ³	73.1	72.8	71.5	73.0	72.1
Allied Special—					
Beds set up at Dec. 31.....	548	190	1,429	1,339	1,500
Admissions.....	415	414	1,023	3,024	3,359
Per 1,000 population ²	--	--	0.1	0.2	0.2
Patient-days.....	57,443	57,755	453,679	393,072	422,631
Per 1,000 population ²	3.3	3.2	24.9	21.2	22.4
Average daily number of patients.....	157.4	157.8	1,243.0	1,076.9	1,157.9
Per 1,000 population ²	--	--	0.1	0.1	0.1
Percentage occupancy ³	78.1	82.6	85.6	80.3	77.3
Tuberculosis—⁵					
Beds set up at Dec. 31.....	898	1,289	1,157	959	634
Admissions.....	503	699	1,033	699	357
Per 1,000 population ²	--	--	0.1	--	--
Patient-days.....	287,392	376,673	343,025	280,765	166,171
Per 1,000 population ²	16.4	21.1	18.8	15.1	8.8
Average daily number of patients.....	787.4	1,029.2	939.8	769.2	455.3
Per 1,000 population ²	--	0.1	0.1	--	--
Percentage occupancy ³	85.3	75.9	79.5	80.0	71.7

¹ Adults and children.² Population estimates as at June 1.³ Based on rated bed capacity.⁴ Mental hospitals only; does not include psychiatric units in other hospitals.⁵ Tuberculosis hospitals only;

does not include tuberculosis units in other hospitals.

Average length of stay of adults and children in public general hospitals in 1963 was 10.2 days, the same as in 1962, and increased gradually from 6.9 days in hospitals with fewer than 10 beds to 14.2 days in those with 1,000 or more beds. Average stay in larger hospitals tends to be longer because of the availability there of specialized and referral services.

7.—Average Length of Stay of Adults and Children in Public General and Allied Special Hospitals, by Province, 1963

Type of Hospital	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada
	days	days	days	days	days	days	days	days	days	days	days	days	days
General.....	13.5	9.9	10.3	9.9	10.3	10.8	8.9	9.5	9.0	9.7	7.7	11.6	10.2
1- 9 beds.....	4.5	7.2	8.2	6.9	6.2	7.3	7.3	7.1	4.7	12.1	--	5.7	6.9
10- 24 ".....	4.9	8.5	7.7	7.3	7.6	7.7	6.8	7.1	7.1	7.4	7.7	5.5	7.1
25- 49 ".....	6.5	8.0	8.4	7.2	7.0	8.6	6.8	7.9	6.7	7.4	--	12.1	7.6
50- 99 ".....	15.8	7.8	9.7	8.5	8.8	10.1	7.6	8.5	7.7	7.9	--	15.0	8.8
100-199 ".....	10.3	10.2	9.7	9.8	8.3	9.4	9.2	10.2	8.2	8.9	--	--	9.0
200-299 ".....	11.0	--	11.7	9.7	9.9	10.2	8.5	11.8	9.5	8.5	--	--	10.9
300-499 ".....	--	--	9.8	11.8	10.7	11.2	9.2	11.4	9.3	10.9	--	--	12.2
500-999 ".....	25.0	--	14.3	15.4	13.3	11.3	11.8	13.3	10.6	11.4	--	--	14.2
1,000 or more beds.....	--	--	--	--	13.4	14.2	--	--	15.7	14.5	--	--	--
Allied Special—													
Chronic, conva- lescent and re- habilitation....	--	106.6	36.7	42.8	234.2	181.9	80.1	204.2	312.8	55.4	--	--	167.0
Maternity.....	--	--	6.1	8.8	6.8	6.7	--	--	5.2	6.3	--	--	6.5
Other.....	38.8	--	--	38.3	28.6	10.2	--	--	9.8	1.2	--	--	20.9
All Public Hospitals.....	14.3	10.4	10.3	10.3	12.7	12.2	10.5	10.1	10.1	10.0	7.7	11.6	11.5

Paid hours of work per patient-day in public general hospitals averaged 13.2 in 1963 compared with 12.9 in 1962, and ranged from 8.9 hours in 10-24 bed hospitals to 15.6 hours in 1,000 or more bed hospitals. The number of persons employed full-time in all Canadian hospitals in 1963 was estimated to be 248,400. In general hospitals there were 184 full-time personnel for every 100 rated beds; among the provinces, the ratio was highest in Quebec at 209 and lowest in Prince Edward Island at 132.

8.—Paid Hours of Work per Patient-Day (Adults and Children), by Type of Hospital and by Province, 1963

NOTE.—These figures relate to accumulated paid hours for all persons for whom salaries are recorded and include worked time as well as paid vacation time, holidays and sick leave.

Type of Hospital	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada
	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.
Public.....	12.5	12.1	14.2	13.6	13.1	12.6	12.3	10.6	10.9	11.1	13.6	10.0	12.4
General.....	12.5	12.2	14.1	13.9	14.5	13.4	13.3	11.2	11.9	11.1	13.6	10.0	13.2
1- 9 beds....	9.0	8.3	14.4	8.9	12.0	—	11.0	10.1	11.8	11.2	—	10.4	10.6
10- 24 "....	9.7	8.7	9.7	9.8	10.4	8.8	9.3	8.2	9.3	8.3	13.6	37.4	8.9
25- 49 "....	8.7	7.4	12.1	12.1	9.9	10.0	8.4	7.6	9.0	8.2	—	9.3	9.2
50- 99 "....	12.3	9.2	12.4	13.3	11.1	10.7	9.3	10.2	9.1	8.8	—	10.6	10.3
100-199 "....	12.9	13.1	15.7	13.6	12.7	12.7	12.0	12.1	12.1	9.3	—	—	12.4
200-299 "....	13.4	13.8	13.6	15.5	13.0	13.7	16.6	11.6	13.4	9.5	—	—	13.6
300-499 "....	—	—	14.7	13.8	15.6	12.5	14.5	14.2	14.0	13.7	—	—	13.8
500-999 "....	12.6	—	15.7	14.4	15.8	15.2	15.8	14.0	13.7	14.5	—	—	15.1
1,000 or more beds.....	—	—	—	—	18.1	15.6	—	—	14.6	13.4	—	—	15.6
Allied Special—													
Chronic, convalescent and rehabilitation.....	—	9.3	9.9	9.2	5.1	6.7	8.5	3.3	5.2	7.4	—	—	6.2
Maternity.....	—	—	20.1	18.6	24.8	15.7	—	—	13.2	14.1	—	—	20.6
Other.....	13.4	—	—	9.6	8.6	17.7	—	—	10.1	...	—	—	10.0
Private.....	—	—	—	—	5.4	7.6	8.8	—	—	7.8	—	27.5	6.2
Federal.....	21.9	—	9.7	9.3	7.2	8.1	16.9	9.1	11.3	8.1	12.2	12.2	8.5
All Hospitals....	12.6	12.1	13.6	13.2	12.2	12.1	12.3	10.6	10.9	10.7	12.4	10.9	12.0

9.—Full-Time Personnel Employed in Operating Public, Private and Federal Hospitals, by Province, 1963

NOTE.—Figures include estimates for non-reporting hospitals.

Province or Territory	General		General and Allied Special		Mental ¹		Tuberculosis ²	
	Number	Per 100 Rated Beds	Number	Per 100 Rated Beds	Number	Per 100 Rated Beds	Number	Per 100 Rated Beds
Newfoundland.....	3,307	176.9	3,546	171.9	638	77.2	544	99.3
Prince Edward Island.....	908	132.2	942	131.4	241	60.6	85	94.4
Nova Scotia.....	7,941	191.0	8,257	174.1	1,483	49.0	570	117.3
New Brunswick.....	7,122	200.9	7,358	189.6	785	49.1	496	84.2
Quebec.....	51,879	209.2	60,156	176.3	7,765	43.7	1,940	90.5
Ontario.....	67,157	189.1	74,078	169.1	13,489	71.1	1,719	69.7
Manitoba.....	9,590	175.7	11,073	160.6	1,557	44.0	352	72.7
Saskatchewan.....	10,366	156.7	10,693	149.5	1,905	54.0	308	96.6
Alberta.....	13,620	158.3	14,977	145.9	2,339	47.1	996	87.6
British Columbia.....	15,524	147.3	15,998	138.5	3,332	51.4	320	79.2
Yukon Territory.....	143	63.0	156	97.3	—	—	—	—
Northwest Territories.....	295	67.9	347	79.5	—	—	—	—
Canada.....	187,852	184.0	207,581	164.9	33,534	54.9	7,330	84.6

¹ Mental hospitals only; exclusive of psychiatric units in other hospitals.

² Tuberculosis hospitals only; exclusive of tuberculosis units in other hospitals.

In 1963, as part of the tuberculosis screening program, public general hospitals carried out, on the average, 32 routine chest X-rays per 100 persons admitted. The ratio of operating-room operations on in-patients was 44 per 100 admissions.

10.—Radiological Examinations and Operations Carried Out in Public General Hospitals, 1963

(Rates per 100 admissions of adults and children)

Bed-Size of Hospital	Radiological Examinations			Operating-Room Operations on In-Patients
	Routine Chest X-rays	Other Radiographic	Fluoroscopic	
1- 9 beds.....	29.4	34.7	...	15.0
10- 24 ".....	34.8	38.2	3.4	20.7
25- 49 ".....	30.2	56.2	6.9	28.2
50- 99 ".....	29.1	63.2	11.1	34.2
100-199 ".....	28.6	81.1	18.8	43.2
200-299 ".....	33.3	88.2	17.6	44.1
300-499 ".....	34.8	97.6	20.7	51.2
500-999 ".....	36.9	113.3	21.5	53.9
1,000 or more beds.....	27.9	134.8	20.2	57.0
All General Hospitals.....	32.3	88.5	17.7	44.2

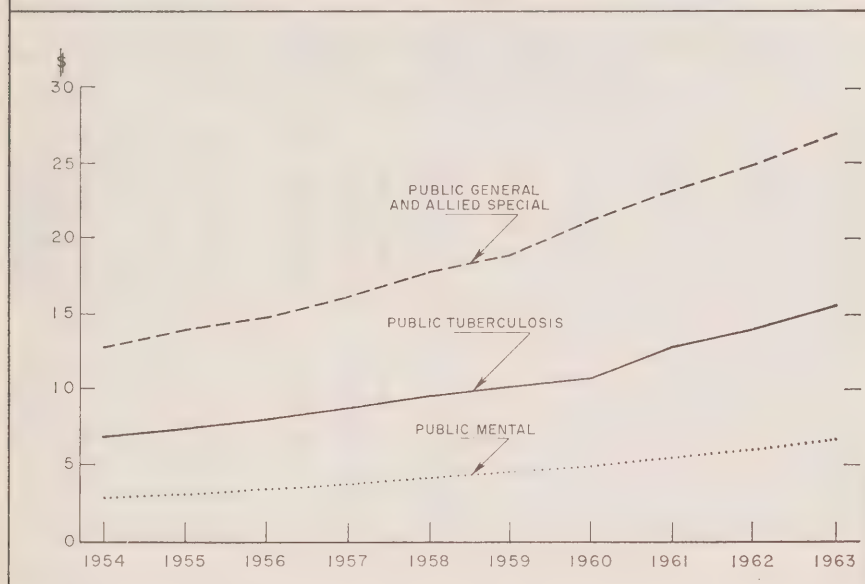
Revenues of public hospitals in 1963 were estimated at \$1,036,000,000 and expenditures at \$1,078,000,000. Most of the revenue of general hospitals (88.2 p.c.) was derived from in-patient earnings and the bulk of the expenditures was for salaries and wages (63.6 p.c.). Cost per patient-day was \$28.58 compared with \$26.36 in 1962. Hospitals of 1,000 or more beds recorded the highest cost per patient-day at \$35.34 and the ratio tended to diminish as hospital size decreased, falling to \$20.44 in the 10-21 bed size.

11.—Revenues and Expenditures of Operating Public Hospitals, by Type, 1963

NOTE.—Figures include estimates for non-reporting hospitals.

Type of Hospital	Operating Hospitals	Revenues				Expenditures				
		Net In-Patient Earnings	Net Out-Patient Earnings	Grants and Other Income	Total	Gross Salaries and Wages	Medical and Surgical Supplies	Drugs	Other	Total
	No.	p.c.	p.c.	p.c.	\$'000	p.c.	p.c.	p.c.	p.c.	\$'000
General.....	838	88.2	5.2	6.6	775,493	63.6	3.2	4.0	29.2	808,649
1- 9 beds.....	48	86.6	6.9	6.5	2,080	61.5	3.2	4.1	31.2	2,256
10- 24 ".....	203	87.1	5.8	7.1	18,128	58.9	3.0	5.1	33.0	19,204
25- 49 ".....	190	89.2	5.4	5.4	37,203	59.7	3.0	4.4	32.9	38,876
50- 99 ".....	138	90.3	4.4	5.3	60,205	62.9	2.7	4.1	30.3	62,940
100-199 ".....	127	89.8	5.1	5.1	129,732	63.1	3.2	4.2	29.5	134,648
200-299 ".....	49	87.9	5.1	7.0	91,635	62.6	3.1	4.0	30.3	95,753
300-499 ".....	45	87.8	5.4	6.8	144,331	64.3	3.3	3.9	28.5	149,770
500-999 ".....	31	87.1	5.3	7.6	201,512	64.2	3.4	3.9	28.5	210,431
1,000 or more beds..	7	87.6	4.8	7.6	90,667	65.9	3.4	3.7	27.0	94,771
Allied Special—										
Chronic, convalescent and rehabilitation.....	79	92.4	1.4	6.2	50,710	66.7	1.1	2.2	30.0	52,709
Maternity.....	11	80.9	1.0	18.1	7,035	67.6	2.7	2.9	26.8	7,433
Other.....	48	77.0	5.1	17.9	14,947	62.6	2.0	2.9	32.5	15,601
Mental.....	83	72.8	0.1	27.1	158,205	66.8	1.0	2.9	29.3	162,450
Tuberculosis.....	39	67.3	1.3	31.4	29,190	65.2	1.6	2.5	30.7	30,661

**COST PER PATIENT-DAY, (ADULTS AND CHILDREN)
BY TYPE OF HOSPITAL, 1954-63**



**12.—Revenues and Expenditures of Operating Public General Hospitals,
by Province, 1963**

NOTE.—Figures include estimates for non-reporting hospitals.

Province or Territory	Operating Hospitals	Total Revenue	Expenditures				
			Gross Salaries and Wages	Medical and Surgical Supplies	Drugs	Other	Total
	No.	\$'000	p.c.	p.c.	p.c.	p.c.	\$'000
Newfoundland.....	30	12,739	51.1	4.0	6.2	38.7	13,798
Prince Edward Island.....	8	3,373	53.8	3.5	3.9	38.8	3,443
Nova Scotia.....	44	28,428	56.8	3.1	3.9	36.2	28,893
New Brunswick.....	35	27,626	57.6	3.3	4.1	35.0	27,871
Quebec.....	121	203,820	63.5	3.2	4.1	29.2	221,464
Ontario.....	173	294,136	64.9	3.3	3.9	27.9	298,826
Manitoba.....	76	36,812	64.0	3.5	4.8	27.7	36,784
Saskatchewan.....	150	44,097	64.3	3.2	4.0	28.5	46,037
Alberta.....	106	54,907	62.2	3.2	3.7	30.9	59,036
British Columbia.....	85	68,292	66.7	3.2	3.7	26.4	71,223
Yukon Territory.....	2	171	55.8	1.7	6.1	36.4	175
Northwest Territories.....	8	1,092	56.1	1.9	1.9	39.1	44

13.—Revenues and Expenditures of Operating Public Hospitals per Patient-Day (excluding Newborn), 1963

Type of Hospital	Operating Hospitals	Revenues				Expenditures				
		Net In-patient Earnings	Net Out-patient Earnings	Grants and Other Income	Total	Gross Salaries and Wages	Medical and Surgical Supplies	Drugs	Other	Total
	No.	\$	\$	\$	\$	\$	\$	\$	\$	\$
General.....	838	24.16	1.42	1.82	27.40	18.18	0.93	1.14	8.33	28.58
1- 9 beds.....	48	18.77	1.49	1.40	21.66	14.34	0.75	0.95	7.29	23.33
10- 24 ".....	203	16.80	1.13	1.36	19.29	12.03	0.61	1.05	6.75	20.44
25- 49 ".....	190	18.17	1.10	1.11	20.38	12.71	0.63	0.95	6.99	21.28
50- 99 ".....	138	19.42	0.95	1.13	21.50	14.15	0.62	0.92	6.81	22.50
100-199 ".....	127	22.61	1.28	1.30	25.19	16.51	0.84	1.09	7.71	26.15
200-299 ".....	49	24.07	1.41	1.92	27.40	17.91	0.89	1.14	8.67	28.61
300-499 ".....	45	24.79	1.52	1.93	28.24	18.84	0.97	1.15	8.34	29.30
500-999 ".....	31	27.54	1.68	2.39	31.61	21.18	1.13	1.29	9.41	33.01
1,000 or more beds.	7	29.62	1.62	2.57	33.81	23.30	1.18	1.31	9.55	35.34
Allied Special—										
Chronic, convalescent and rehabilitation.....	79	11.80	0.35	0.62	12.77	8.82	0.14	0.30	3.97	13.23
Maternity.....	11	29.25	0.36	6.56	36.17	25.82	1.04	1.13	10.22	38.21
Other.....	48	16.70	1.18	3.81	21.69	14.17	0.45	0.66	7.34	22.62
Mental.....	83	4.75	--	1.77	6.52	4.48	0.06	0.20	1.95	6.69
Tuberculosis.....	39	10.00	0.20	4.66	14.86	10.22	0.25	0.39	4.78	15.64

14.—Revenues and Expenditures of Operating Public Hospitals per Patient-Day (excluding Newborn), by Province, 1963

Province and Type of Hospital	Operating Hospitals	Total Revenue	Expenditures				
			Gross Salaries and Wages	Medical and Surgical Supplies	Drugs	Other	Total
	No.	\$	\$	\$	\$	\$	\$
Newfoundland—							
General.....	30	21.17	11.76	0.91	1.44	8.90	23.01
Allied Special—							
Chronic, convalescent and rehabilitation.....	1	..	..	..	..	..	..
Other.....	12	9.32	..	..	..	..	..
Mental.....	1	9.32	5.18	0.06	0.29	3.79	9.32
Tuberculosis.....	2	17.53	11.32	0.61	0.81	5.45	18.19
Prince Edward Island—							
General.....	8	20.29	11.14	0.71	0.82	8.04	20.71
Allied Special—							
Chronic, convalescent and rehabilitation.....	1	15.50	10.95	0.29	0.14	4.61	15.99
Maternity.....	2	5.71	2.98	0.04	0.31	2.12	5.45
Tuberculosis.....	1	14.58	7.90	0.33	0.31	6.04	14.58
Nova Scotia—							
General.....	44	26.61	15.35	0.84	1.05	9.78	27.02
Allied Special—							
Chronic, convalescent and rehabilitation.....	2	24.10	14.95	0.71	0.48	9.39	25.53
Maternity.....	1	41.19	23.42	1.10	1.08	15.74	41.34
Mental.....	10	5.68	3.78	0.02	0.14	1.83	5.77
Tuberculosis.....	3	19.68	13.63	0.04	0.55	5.46	19.68
New Brunswick—							
General.....	35	27.62	16.04	0.93	1.13	9.75	27.85
Allied Special—							
Chronic, convalescent and rehabilitation.....	2	20.09	12.36	0.44	0.74	6.81	20.35

**14.—Revenues and Expenditures of Operating Public Hospitals per Patient-Day
(excluding Newborn), by Province, 1963—concluded**

Province or Territory and Type of Hospital	Operating Hospitals	Total Revenue	Expenditures				
			Gross Salaries and Wages	Medical and Surgical Supplies	Drugs	Other	Total
	No.	\$	\$	\$	\$	\$	\$
New Brunswick—concluded							
Allied Special—concluded							
Maternity.....	1	34.37	19.70	0.67	0.31	21.30	41.98
Other.....	1	19.35	11.98	0.34	0.33	6.93	19.58
Mental.....	2	5.73	3.70	0.05	0.17	1.81	5.73
Tuberculosis.....	4	17.19	11.11	0.15	0.27	5.82	17.35
Quebec—							
General.....	121	29.33	20.25	1.01	1.31	9.32	31.89
Allied Special—							
Chronic, convalescent and reha- bilitation.....	21	10.15	6.86	0.10	0.30	3.49	10.75
Maternity.....	5	38.30	28.45	0.98	1.20	11.00	41.63
Other.....	10	16.72	11.28	0.35	0.60	5.21	17.44
Mental.....	22	4.26	2.82	0.02	0.21	1.73	4.78
Tuberculosis.....	8	10.32	7.10	0.19	0.54	5.04	12.87
Ontario—							
General.....	173	29.28	19.32	0.97	1.15	8.30	29.74
Allied Special—							
Chronic, convalescent and reha- bilitation.....	22	14.00	9.78	0.14	0.27	4.05	14.24
Maternity.....	1	35.42	24.69	1.27	1.48	7.66	35.10
Other.....	16	52.41	31.69	0.99	1.17	21.27	55.12
Mental.....	24	8.53	6.12	0.06	0.26	2.09	8.53
Tuberculosis.....	12	16.64	11.90	0.25	0.21	4.70	17.06
Manitoba—							
General.....	76	26.20	16.76	0.91	1.25	7.25	26.17
Allied Special—							
Chronic, convalescent and reha- bilitation.....	4	16.84	11.52	0.23	0.44	4.65	16.84
Mental.....	4	5.71	4.07	0.08	0.15	1.37	5.67
Tuberculosis.....	3	10.80	6.53	0.14	0.19	4.00	10.86
Saskatchewan—							
General.....	150	22.42	15.05	0.74	0.93	6.68	23.40
Allied Special—							
Chronic, convalescent and reha- bilitation.....	3	7.04	5.15	0.05	0.71	1.13	7.04
Mental.....	4	7.04	5.15	0.05	0.71	1.13	7.04
Tuberculosis.....	2	16.21	12.12	0.25	0.42	2.69	15.48
Alberta—							
General.....	106	23.58	15.76	0.82	0.94	7.84	25.36
Allied Special—							
Chronic, convalescent and reha- bilitation.....	18	9.49	6.61	0.12	0.20	3.50	10.43
Maternity.....	2	25.08	19.19	1.27	0.52	5.71	26.69
Other.....	1	20.26	14.73	0.65	0.48	4.34	20.20
Mental.....	6	6.98	4.78	0.02	0.16	2.01	6.97
Tuberculosis.....	2	22.28	14.96	0.20	0.26	4.13	19.55
British Columbia—							
General.....	85	25.14	17.49	0.83	0.98	6.92	26.22
Allied Special—							
Chronic, convalescent and reha- bilitation.....	5	17.41	13.54	0.12	0.21	5.50	19.37
Maternity.....	1	30.04	22.96	0.87	0.88	6.76	31.47
Other.....	8	...	...	...	...	...	...
Mental.....	8	7.54	4.68	0.32 ¹	1	2.54	7.54
Tuberculosis.....	2	20.83	15.43	1.00	0.27	4.13	20.83
Yukon Territory—							
General.....	2	44.27	25.28	0.79	2.77	16.48	45.32
Northwest Territories—							
General.....	8	21.85	12.37	0.43	0.67	8.57	22.04

¹ Medical and surgical supplies include drugs.

Subsection 2.—Notifiable Diseases and Other Health Statistics*

In terms of number of new cases, the major infectious diseases reportable on a national basis were, in 1963, the venereal diseases combined (22,199 cases), infectious and serum hepatitis (10,077 cases), and scarlet fever and streptococcal sore throat (9,920 cases). Despite its relatively high level, the incidence of scarlet fever and streptococcal sore throat was 57.6 p.c. below the peak reached in 1959; the rate of infection was 52.5 cases per 100,000 population, which compared favourably with the corresponding 1959 rate of 134.2. In proportion to population, the province most severely affected in 1963 was Prince Edward Island, where the rate was more than 42 times that for the country as a whole.

Year-to-year increases, which exceeded the rate of growth in the population at risk, occurred between 1959 and 1963 in the incidence of the venereal diseases, the rate of new infections rising from 97.3 to 117.5 per 100,000 population. As in 1961 and 1962, British Columbia contributed the largest number of cases, although the case-rate for that province (320.6 per 100,000 persons) was lower than those for the Yukon Territory and the Northwest Territories. Among the reportable types of venereal disease, gonorrhoea accounted for 87.4 p.c. of total cases nationally, and for 75.6 p.c. of the British Columbia cases.

The rate of viral hepatitis infections increased from 27.1 cases per 100,000 population in 1959 to 67.5 in 1961 and 1962 and then dropped to 53.3 in 1963.

In recent years the most significant decline in the incidence of a notifiable disease has been the falling off in reported cases of paralytic poliomyelitis. Contributing to the decrease have been the development of vaccines and mass inoculation and feeding programs undertaken by public health authorities. Only 123 new cases were reported during 1963; this was slightly higher than the 89 cases reported in 1962 but was still lower than for any other year since 1949, the first year statistics on this disease were compiled nationally.

* Prepared in the Public Health Section, Health and Welfare Division, Dominion Bureau of Statistics.

15.—Reported Cases of Selected Notifiable Diseases and Rates per 100,000 Population, 1960-63

Inter-national List No.	Disease	Cases				Rates per 100,000 Population			
		1960 ¹	1961 ¹	1962 ¹	1963	1960 ¹	1961 ¹	1962 ¹	1963
		No.	No.	No.	No.				
044	Brucellosis (undulant fever)...	142	109	98	57	0.9	0.6	0.5	0.3
764	Diarrhoea of the newborn, epidemic	72	81	82	99	0.7	0.7	0.7	0.9
055	Diphtheria	55	91	71	76	0.3	0.5	0.4	0.4
045, 046, 048	Dysentery ²	3,279	3,250	2,910	4,165	18.4	17.8	15.7	22.0
046	Amoebic	4	12	7	20		0.1		0.1
045	Bacillary	2,640	1,479	1,241	1,448	14.8	8.1	6.7	7.7
082.0	Encephalitis, infectious	9	1	4	57	0.1			0.5
049.0, 049.1, 049.2	Food poisoning	1,216	1,288	1,412	1,116	10.4	10.7	11.6	9.0
092, N998.5	Hepatitis, infectious (including serum hepatitis)	6,314	12,314	12,538	10,077	35.4	67.5	67.5	53.3
080.2, 082.1	Meningitis, viral or aseptic	694	412	279	291	6.0	3.5	2.3	2.3
057	Meningococcal infections	158	122	110	111	0.9	0.7	0.6	0.6
766	Pemphigus neonatorum (impetigo of the newborn)	7	13	13	3	0.1	0.1	0.1	³
056	Pertussis (whooping cough)	5,992	5,476	8,076	6,136	33.6	30.0	43.5	32.5
080.0, 080.1	Poliomyelitis, paralytic	909	188	89	123	5.1	1.0	0.5	0.7
050, 051	Scarlet fever and streptococcal sore throat	21,251	13,060	10,241	9,920	119.3	71.6	55.1	52.5
040, 041	Typhoid and paratyphoid fever	335	266	277	147	1.9	1.5	1.5	0.8
	Venereal diseases ²	17,834	18,774	20,133	22,199	100.1	102.9	108.4	117.5
030-034	Gonorrhoea	15,661	16,480	17,697	19,411	87.9	90.2	95.8	102.7
020-021.3, 023, 024, 026-029	Syphilis	2,168	2,311	2,432	2,785	12.2	12.7	13.1	14.7

¹ Includes venereal diseases only for the Northwest Territories. type not specified.

² Includes other cases and cases where

³ Less than 0.05 per 100,000 population.

16.—Reported Cases of Selected Notifiable Diseases and Rates per 100,000 Population, by Province, 1963

Inter- national List No.	Disease	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.
NUMBER OF CASES													
044	Brucellosis (undulant fever)	—	—	—	—	28	10	12	—	6	1	—	—
764	Diarrhoea of the newborn, epidemic	—	—	46	—	—	1	16	1	10	27	—	—
055	Diphtheria	—	—	—	—	6	—	24	9	29	—	—	8
045, 046, 048	Dysentery ²	—	1	2,104	7	273	498	396	58	315	510	2	1
046	Amoebic	—	—	—	—	—	6	—	9	1	4	—	—
045	Bacillary	—	1	86	7	273	492	60	49	309	169	2	—
082.0, 042.1, 049.2	Encephalitis, infectious	—	1	1	—	—	1	8	38	6	—	—	4
049.0, 042.1, 049.2	Food poisoning	—	—	41	3	524	1	16	59	119	354	—	—
092, N998.5	Hepatitis, infectious (in- cluding serum hepatitis)	185	102	734	174	1,311	2,701	761	1,018	1,300	1,736	15	40
080.2, 082.1	Meningitis, viral or aseptic	9	1	19	9	65	1	54	21	42	64	—	7
057	Meningococcal infections	15	—	3	8	18	40	2	6	12	7	—	—
766	Pemphigus neonatorum (impetigo of the newborn)	—	1	2	—	—	1	—	—	—	1	—	—
056	Pertussis (whooping cough)	221	36	378	11	1,643	1,967	76	139	954	711	—	—
080.0, 080.1	Poliomyelitis, paralytic	—	—	—	7	113	—	—	1	2	—	—	—
050, 051	Scarlet fever and strepto- coccal sore throat	326	2,301	1,502	6	386	2,379	118	599	1,153	1,099	51	—
040, 041	Typhoid and paratyphoid fever	11	—	47	3	57	40	6	13	7	6	—	—
030-034 020-021.3, 023, 024, 026-029 036-038	Veneral diseases	308	29	427	326	3,179	3,655	1,936	2,324	4,261	5,434	134	186
	Gonorrhoea	288	26	349	318	2,445	2,671	1,738	2,145	4,106	4,959	132	186
	Syphilis	20	3	78	8	734	984	150	178	155	473	2	—
	Other	—	1	—	—	—	—	—	1	—	2	—	—
RATES PER 100,000 POPULATION													
044	Brucellosis (undulant fever)	—	—	—	—	0.5	0.2	1.3	—	0.4	0.1	—	—
766	Diarrhoea of the newborn, epidemic	—	—	6.1	—	—	1	1.7	1	0.7	1.6	—	—
055	Diphtheria	—	—	—	—	0.1	—	2.5	1.0	2.1	—	—	33.3
045, 046, 048	Dysentery ²	—	0.9	278.3	1.1	5.0	7.7	41.7	6.2	22.4	30.1	13.3	4.2
046	Amoebic	—	—	—	—	—	0.1	—	1.0	0.1	0.2	—	—
045	Bacillary	—	0.9	11.4	1.1	5.0	7.6	6.3	5.3	22.0	10.0	13.3	—
082.0, 042.1, 049.2	Encephalitis, infectious	—	1	0.1	—	—	1	0.8	4.1	0.4	—	—	16.7
049.0, 042.1, 049.2	Food poisoning	—	—	5.4	0.5	9.6	1	1.7	6.3	8.5	20.9	—	—
092, N998.5	Hepatitis, infectious (in- cluding serum hepatitis)	38.5	95.3	97.1	28.3	24.0	41.9	80.1	109.1	92.5	102.4	100.0	166.7
080.2, 082.1	Meningitis, viral or aseptic	1.9	0.9	2.5	1.5	1.2	1	5.7	2.3	3.0	3.8	—	29.2
057	Meningococcal infections	3.1	—	0.4	1.3	0.3	0.6	0.2	0.6	0.9	0.4	—	—
766	Pemphigus neonatorum (impetigo of the newborn)	—	1	0.3	—	—	1	—	—	—	0.1	—	—
056	Pertussis (whooping cough)	45.9	33.6	50.0	1.8	30.0	30.5	8.0	14.9	67.9	41.9	—	—
080.0, 080.1	Poliomyelitis paralytic	—	—	—	1.1	2.1	—	—	0.1	0.1	—	—	—
050, 051	Scarlet fever and strepto- coccal sore throat	67.8	2,150.5	198.7	1.0	7.1	36.9	12.4	64.2	82.1	64.8	340.0	—
040, 041	Typhoid and paratyphoid fever	2.3	—	0.5	0.5	1.0	0.6	0.6	1.4	0.5	0.4	—	—
030-034 020-021.3, 023, 024, 026-029 036-038	Veneral diseases	64.0	27.1	56.5	53.1	58.1	56.7	203.8	249.1	303.3	320.6	893.6	775.0
	Gonorrhoea	59.9	24.3	46.2	51.8	44.7	41.4	188.0	229.9	292.2	292.6	880.0	775.0
	Syphilis	4.2	2.8	10.3	1.3	13.4	15.3	15.8	19.1	11.0	27.9	13.3	—
	Other	—	1	—	—	—	—	—	0.1	—	0.1	—	—

¹ Not reportable.² Includes other cases where type not specified.

Subsection 3.—Numbers and Earnings of Privately Practising Physicians

Numbers.—According to a survey conducted by the Department of National Health and Welfare, there were 21,011 active civilian physicians in Canada in 1962; the 1962 ratio of 881 persons per physician continues the postwar trend of improvement in over-all physician supply. Table 17 shows the historical trend since 1901 and the provincial distribution for 1962. The ratio of 748 persons per physician for British Columbia in the latest year is the most favourable level of physician supply yet achieved by a Canadian province.

17.—Active Civilian Physicians and Population per Physician, 1901-62, and by Province, 1962

Year	Active Civilian Physicians		Province	Active Civilian Physicians	
	Number	Population per Physician		Number	Population per Physician
Census Data—			Newfoundland.....	304	1,539
1901.....	5,475	972	Prince Edward Island.....	87	1,218
1911.....	7,411	970	Nova Scotia.....	735	1,012
1921.....	8,706	1,008	New Brunswick.....	458	1,321
1931.....	10,020	1,034	Quebec.....	5,932	902
1941.....	10,723	1,072	Ontario.....	7,826	808
			Manitoba.....	1,085	859
Register of Physicians—			Saskatchewan.....	919	1,010
1951.....	14,163	989	Alberta.....	1,367	998
1954.....	15,651	977	British Columbia.....	2,210	748
1959.....	19,300	900	Yukon and Northwest Territories.....	25	1,560
1962.....	21,011	881	Canada.....	21,011¹	881

¹ Includes 63 not allocated by province.

Table 18 shows that the physicians of Canada are more highly concentrated in the larger centres of population than is the population generally, and that this concentration has been increasing for both the total population and physicians. In addition, the percentage increase of the 1962 total of physicians in centres of fewer than 10,000 population over that for 1951 was less (5.8) than the percentage increase over 1951 of the 1959 total in these areas (11.9), indicating a decrease in the total number of physicians in these areas during the 1959-62 period. Although the trends indicated in these data are slightly exaggerated by changes between censuses in the make-up of census metropolitan areas, it is clear that there is an over-all widening of the traditional disparity in availability of physician services between smaller localities and large urban centres.

18.—Percentages of Population and of Active Civilian Physicians in Centres of Over or Under 10,000 Population and Percentage Increases over 1951

Item	Percentages of Total			Percentage Increases Over 1951		
	In Centres of—		Total	For Centres of—		Total
	10,000 or Over Population	Under 10,000 Population		10,000 or Over Population ¹	Under 10,000 Population	
Population—						
1951.....	48.2	51.8	100.0	...	...	...
1961.....	57.7	42.3	100.0	55.9	6.3	30.2
Physicians—						
1951.....	73.2 ²	26.8	100.0	...	...	...
1954.....	73.7 ²	26.3	100.0	12.3	9.3	11.5
1959.....	78.2 ³	21.8	100.0	46.8	11.9	37.4
1962.....	81.0 ⁴	19.0	100.0	64.6	5.8	48.8

¹ Includes all parts of Census metropolitan areas, regardless of size.

² Size of place as in 1951 Census.

³ Size of place as in 1955 Census.

⁴ Size of place as in 1961 Census.

Table 19 indicates little real change in recent years in the proportion of active civilian physicians who are engaged primarily in private practice, but an increased emphasis on specialization is indicated within both the private practice and "Other Work" groups. The increase between 1959 and 1962 in the proportion of physicians who were "interns, residents, fellows" is in line with the trend toward increased specialization and the longer training period involved.

19.—Percentage Distribution of Active Civilian Physicians by Nature of Major Work in which Engaged, 1954, 1959 and 1962

Nature of Major Work	1954 ¹	1959 (estimate)	1962 (estimate)
	p.c.	p.c.	p.c.
General private practice ²	43.2	39.3	37.7
Specialist private practice ²	29.1	34.7	35.7
Totals, Private Practice ²	72.3	74.0	73.4
Interns, residents and fellows.....	8.3	8.3	9.0
Other Work—			
Non-specialist.....	8.5	5.7	4.7
Specialist.....	10.8	12.0	12.9
Grand Totals	100.0	100.0	100.0

¹ Data prior to 1959 did not take into account certifications by the College of Physicians and Surgeons of the Province of Quebec. Although designation as a "specialist" did not depend on the holding of formal specialist qualifications, specialization was nevertheless slightly understated in the data prior to 1959, most particularly in Quebec.

² Includes group practice and partnerships.

Earnings.—More than 95 p.c. of the earnings of privately practising physicians and surgeons in Canada were obtained from fees charged for individual items of professional service. As Table 20 shows, average gross earnings in 1963 from fees plus wages and salaries earned incidental to fee practice were \$28,367. This figure was 9 p.c. higher than in 1962 and 39 p.c. above the 1957 figure. The highest average gross earnings in 1963 were reported in Saskatchewan at \$34,031; in Alberta at \$30,902 and Ontario at \$30,442 they were substantially above the national average. Average gross incomes in the remaining provinces were below the national average and ranged downward from \$27,500 in British Columbia to \$21,034 in Newfoundland. Generally, throughout the seven-year period 1957-63, highest average gross earnings have been most consistently reported in Ontario and the westernmost provinces, with Alberta usually having the highest average of all.

The net returns to doctors, after deduction of the expenses of professional fee practice, reveal similar geographic patterns, as seen in Table 20. Net earnings for Canada as a whole averaged \$18,799 in 1963, 8.8 p.c. higher than in 1962 and about 49 p.c. above the 1957 figure. The highest provincial average net income was reported by Saskatchewan doctors at \$21,436 followed by Ontario doctors at \$21,227. The lowest average net income was reported in Newfoundland.

20.—Average Gross and Net Professional Incomes of Physicians and Surgeons, by Province, 1957-63

NOTE.—Data for taxable physicians and surgeons only.

Province	1957	1958	1959	1960	1961	1962	1963
GROSS PROFESSIONAL INCOMES ¹							
	\$	\$	\$	\$	\$	\$	\$
Newfoundland	17,893	19,003	18,988	21,483	21,072	19,235	21,034
Prince Edward Island	15,855	18,322	19,553	20,790	20,553	20,147	21,562
Nova Scotia	19,776	19,741	21,386	22,850	23,274	23,284	23,352
New Brunswick	17,559	19,757	19,161	22,908	24,728	24,548	27,017
Quebec	16,701	18,039	18,435	19,412	21,925	23,208	25,543
Ontario	21,707	23,100	23,780	25,217	26,972	27,558	30,442
Manitoba	22,757	23,968	26,172	24,537	27,648	27,508	27,260
Saskatchewan	22,669	23,426	23,510	26,853	26,884	23,016	34,031
Alberta	23,349	24,735	25,078	27,872	29,074	31,052	30,902
British Columbia	22,968	24,171	25,999	27,483	28,536	27,350	27,500
Canada²	20,472	21,760	22,514	23,917	25,471	26,002	28,367
NET PROFESSIONAL INCOMES ³							
	\$	\$	\$	\$	\$	\$	\$
Newfoundland	13,330	13,683	13,336	15,263	14,886	14,622	15,386
Prince Edward Island	10,064	10,610	11,975	13,005	13,612	15,965	16,669
Nova Scotia	10,090	12,927	14,858	16,113	16,099	15,910	15,760
New Brunswick	10,149	12,618	12,566	15,861	16,700	16,881	18,184
Quebec	10,524	10,954	13,135	12,688	14,292	16,925	16,549
Ontario	13,702	14,748	15,334	16,528	17,501	18,145	21,227
Manitoba	12,970	13,479	14,649	15,199	15,004	15,836	17,150
Saskatchewan	13,886	14,465	14,961	15,806	15,727	14,461	21,436
Alberta	13,410	14,751	15,819	17,648	17,823	18,527	19,105
British Columbia	14,390	14,947	16,436	17,216	17,536	17,182	17,349
Canada²	12,641	13,523	14,899	15,477	16,316	17,275	18,799

¹ Includes incidental wages and salaries. expenses of practice.

² Provinces only.

³ Gross professional incomes less

PART II.—PUBLIC WELFARE AND SOCIAL SECURITY

Responsibility for social welfare is shared by all levels of government. Comprehensive income-maintenance measures such as the Canada Pension Plan, old age security pensions, family allowances, youth allowances, and programs such as unemployment insurance and the National Employment Service where nation-wide co-ordination is required, are administered federally. Substantial federal aid is given to the provinces in meeting the costs of public assistance. The Federal Government also provides services for special groups such as veterans, Indians, Eskimos and immigrants.

The Department of National Health and Welfare is generally responsible for federal welfare matters: the Departments of Veterans Affairs, Citizenship and Immigration (Eskimos) and Northern Affairs and National Resources (Indians) also operate programs for specific groups. The Unemployment Insurance Commission is responsible for the operation of unemployment insurance and the National Employment Service is administered by the Department of Labour. Information on these items is given in other chapters of this publication (see Index).

Administration of welfare services is primarily the responsibility of the provinces but the provision of services is often assumed by local authorities, generally with financial aid from the province.

Co-ordination in welfare matters between different levels of government and between government and voluntary authorities will be facilitated by the newly established National Council of Welfare, an advisory body to the Minister of National Health and Welfare. The Council consists of the federal Deputy Minister of Welfare who acts as chairman, the provincial deputy ministers of welfare, and ten other persons appointed for three-year terms by the Governor in Council. The National Council of Welfare held its first meeting in Ottawa during April 1965.

Section 1.—Federal Government Programs

Subsection 1.—Canada Pension Plan

Canada Pension Plan legislation, enacted in 1965, provides an important new component in Canada's social security system. The Plan is designed to provide, for most members of the labour force, a social insurance system whereby each contributor builds up a right to a graduated retirement pension, the amount of which is related to his previous earnings pattern. The Plan also provides benefits to the disabled contributor and his dependent children and, at the contributor's death, a death benefit and benefits for his widow and orphaned children.

Retirement pensions under the Canada Pension Plan will come into effect according to the following staging. In 1967 contributors age 68 or over will be able to claim retirement pensions; contributors age 67 or over can do so in 1968, contributors age 66 or over in 1969, and contributors age 65 or over in 1970 and after.

Until the Plan is 10 years old the rates of retirement pension will be built up steadily. In 1967, after one year of contributions, the retirement pension will be 2.5 p.c. of a contributor's pensionable earnings. For anyone contributing for two years and retiring at age 67 or over in 1968, the pension will be 5 p.c. of his earnings, and so on, until the full benefit of 25 p.c. of pensionable earnings is first reached after 10 years of contributions.

Pensions for widows and disabled widowers, orphans' benefits and the death benefit will first be payable early in 1968. Pensions for disabled contributors and for their dependent children will first be payable in the spring of 1970.

Coverage under the Canada Pension Plan and the comparable Quebec scheme will be comprehensive. For administrative and constitutional reasons, there will be certain exemptions from coverage. Employees who earn \$600 or less in a year and self-employed persons who earn less than \$800 in a year will not pay contributions for that year.

The Canada Pension Plan will be financed by contributions based on earnings. The first \$600 of each person's annual earnings will be exempt from contributions. On earnings above that amount and below the ceiling, initially \$5,000 a year, the employee will make a contribution of 1.8 p.c. Employers will make a matching contribution. Self-employed people will pay the combined rate of 3.6 p.c. on annual earnings between \$600 and \$5,000 provided their total annual earnings are \$800 or more.

The contributory limits under the Canada Pension Plan will be adjusted with changing economic conditions. For the first two years of the plan the upper and lower limits are \$5,000 and \$600. For the next eight years these limits will be adjusted by means of a specially constructed pension index which reflects changes in the consumer price index. After the tenth year, the contributory limits will be adjusted according to changes in the earnings index which will be based on a long-term moving average of national wages and salaries. For purposes of calculating a contributor's pension, his earnings record for each

year will be adjusted at the time the benefit begins so that it bears the same relation to the contributory earnings upper limit in force at that time that his actual earnings bore to the upper limit prevailing in the year in which they were made.

In the calculation of a retirement pension, the contributor's earnings are averaged over the period from his age 18, or January 1966 if that is later, to his age 65 or until he claims a pension, if that is later. For each year beyond age 65 that a man continues to work and make contributions he will be able to exclude, after 1975, an additional low year. In order not to unduly penalize people whose earnings in some years are abnormally low through sickness or unemployment, the Plan allows them to exclude, in calculating their average earnings, periods equal to 15 p.c. of their remaining contributory periods.

The earnings-related retirement pension is designed for contributors who have retired from regular employment. Those continuing to work or taking up new employment after claiming a Canada retirement pension will have to pass a retirement test; the test will be effective from age 65 until age 70, at which time the retirement pension will become payable unconditionally. The retirement test is such that when earnings exceed \$900 a year, but not \$1,500, the pension for that year will be reduced by one half the excess. When earnings exceed \$1,500 a year, pension will be reduced by \$300 plus earnings in excess of \$1,500. No adjustment will be made to a pension for any month in which the pensioner's earnings do not exceed \$75 no matter what his earnings in any other month may be. Retirement test limits will be adjusted in future in the light of changing economic conditions.

A contributor who becomes disabled after making the required number of contributions will be entitled to a disability pension consisting of a flat rate component, initially \$25 monthly, and an earnings-related component amounting to 75 p.c. of the retirement pension otherwise payable to him. In calculating this pension, earnings are averaged over the period from age 18 or January 1966 until the date the disability pension becomes payable, the minimum period being 60 months. In addition, benefits will be payable for dependent children of a disability pensioner, that is, children under age 18 and children up to age 25 if in full-time attendance at school. The rate is \$25 for each of the first four eligible children and \$12.50 for each additional child.

A widow age 45 or over at the contributor's death, a disabled widow of any age and a widow of any age with dependent children will be entitled to a widow's pension consisting of a flat rate component, initially \$25 a month, and an earnings-related component equal to 37.5 p.c. of the retirement pension payable to her deceased husband. A widow who is not disabled and who is not caring for dependent children will have her pension reduced if she is under age 45 at the death of her husband; if she is under age 35, no pension is payable until she is 65. Since these widows' pensions include a flat rate component, a minimum number of contributions by the deceased contributor are required.

Benefits payable for orphans are equal in amount to the benefits provided to dependent children of a disability pensioner.

Women widowed of age 65 or over and widows reaching age 65 will receive pensions of 60 p.c. of their husbands' retirement pensions. Many widows of age 65 or over will also be entitled to retirement pensions of their own. At age 65 there are provided two alternative formulae for the re-calculation of the widow's pension, thereby providing retirement income that would best reflect the widow's particular circumstances.

A pension is also provided for the disabled widower if he was disabled at the time of his wife's death and was wholly or substantially maintained by her. The pension for a disabled widower under 65 years of age is \$25 plus 37.5 p.c. of his wife's retirement pension. For a disabled widower reaching age 65 or for a person becoming a disabled widower

after age 65, the rate of pension is 60 p.c. of his wife's retirement pension. Disabled widowers entitled to their own retirement pensions are provided with two alternative formulae for purposes of calculating their total retirement income. The disabled widower must continue to prove disability for the duration of his pension.

A lump sum death benefit is payable subject to the same qualifying conditions as pertain to other survivors' pensions. The amount of the benefit is six times the monthly retirement benefit that is being (or would be) paid to the contributor in the month of his death, but cannot exceed 10 p.c. of the contributory ceiling for that year.

Canada Pension Plan benefits, once they have commenced to be paid, will be adjusted in accordance with changes in the pension index.

The Department of National Health and Welfare will administer the Canada Pension Plan. Contributions will be collected by the Department of National Revenue. Employers will be responsible for deductions from their employees' earnings and for remitting these, along with their own contributions, to the Department of National Revenue. Self-employed persons will make payments directly at the time such people normally pay their income tax. The administration of the federal legislation will be co-ordinated with provincial legislation of a comparable nature. Social insurance numbers, which have already been issued to over 6,000,000 people, will be extended to all contributors under the Canada Pension Plan.

Appeals in connection with coverage and contributions may be made to the Minister of National Revenue. If a contributor is not satisfied, he may appeal further to the Pension Appeals Board whose decision is final except when any question of fact or law involves the operation of the Act in a province providing its own comprehensive pension plan. In this case a further appeal may be made to the Supreme Court of Canada. With regard to benefits, there is a three-stage appeal procedure: first to the Minister of National Health and Welfare; second, if the applicant is not satisfied with the Minister's decision, to a Review Committee; and third, to the Pension Appeals Board whose decision is final and binding.

The legislation provides authority for reciprocal agreements with other countries where there is a common interest in the portability of pensions and where a mutually satisfactory agreement can be attained.

Subsection 2.—Old Age Security

Under the Old Age Security Act of 1951, as amended, a universal pension of \$75 a month is payable by the Federal Government to all persons who meet the residence and age qualifications. The pension is payable in 1965 to those aged 70 or over but will be payable in 1966 to persons aged 69 or over, in 1967 to those aged 68 or over, and so on until by 1970 it will be payable to everyone aged 65 or more. In 1968 and succeeding years, the amount of the old age security pension will be increased in line with changes in the pension index developed for the Canada Pension Plan (see p. 317).

The old age security pension is payable to a person of attained age who has resided in Canada for ten years immediately preceding his application for the pension. Any gaps in the ten-year period may be offset if the applicant had resided in Canada in earlier years for periods of time equal in total to double the length of the gaps; in this case, however, the applicant must also have resided in Canada for one year immediately before his application for pension. A recent amendment authorizes the payment of the old age security pension to persons of attained age who have had 40 years of residence in Canada since age 18, thus making eligible for the pension those who have left Canada before reaching the qualifying age but who have spent virtually all of their working lives in

Canada. A pensioner may absent himself from Canada and continue to receive pension payments. If he has lived in Canada for 25 years since his 21st birthday, payment outside of Canada may continue indefinitely; if he has not so resided, payment is continued for six months, in addition to the month of departure, and is then suspended, to be resumed only with the month in which he returns to Canada.

The program is administered by the Department of National Health and Welfare through regional offices located in each provincial capital to which application is made for pension. It is financed on the pay-as-you-go method through a 3-p.c. sales tax, a 3-p.c. tax on corporation income and, subject to a limit of \$120 a year, a 4-p.c. tax on taxable personal income.

1.—Old Age Security Statistics, by Province, Year Ended Mar. 31, 1965 with Totals for 1961-65

Province	Pensioners in March	Net Pensions Paid during Fiscal Year	Province or Territory	Pensioners in March	Net Pensions Paid during Fiscal Year
	No.	\$		No.	\$
Newfoundland.....	18,886	16,811,166	British Columbia.....	124,262	111,327,361
Prince Edward Island.....	7,949	7,118,615	Yukon and Northwest Territories.....	707	633,415
Nova Scotia.....	45,014	40,399,804			
New Brunswick.....	33,262	29,780,719	Canada.....1965	993,582	885,294,468
Quebec.....	214,294	189,682,327			
Ontario.....	360,888	321,064,620	1964	971,801	808,391,300
Manitoba.....	59,818	53,360,235	1963	950,766	734,381,632
Saskatchewan.....	61,257	55,063,268	1962	927,590	625,107,804
Alberta.....	67,245	60,052,938	1961	904,906	592,413,238

Subsection 3.—Family Allowances

The Family Allowances Act of 1944 is designed to assist in providing equal opportunity for all Canadian children. The allowances do not involve a means test and are paid from the federal Consolidated Revenue Fund. They do not constitute taxable income but there is a smaller income tax exemption for children eligible for allowances.

Allowances are payable in respect of every child under the age of 16 years who was born in Canada, or who has been a resident of the country for one year, or whose father or mother was domiciled in Canada for three years immediately prior to the birth of the child. Payment is made by cheque each month, normally to the mother, although any person who substantially maintains the child may be paid the allowance on his behalf. Allowances are paid at the monthly rate of \$6 for each child under 10 years of age and \$8 for each child age 10 or over but under 16 years. If the allowances are not spent for the purposes outlined in the Act, payment may be discontinued or made to some other person or agency on behalf of the child. Allowances are not payable for any child who fails to comply with provincial school regulations or on behalf of a girl who is married and under 16 years of age.

The program is administered by the Department of National Health and Welfare through regional offices located in each provincial capital. A Regional Director for the Yukon and Northwest Territories is located at Edmonton.

The Federal Government pays family assistance, at the rates applicable for family allowances, for each child under 16 years of age resident in Canada and supported by an immigrant who has landed for permanent residence in Canada, or by a Canadian returned to Canada to reside permanently. The assistance, which is payable monthly and for a maximum period of one year, is not payable for a child eligible for family allowances.

2.—Family Allowances Statistics, by Province, Year Ended Mar. 31, 1965 with Totals for 1961-65

Province or Territory	Families Receiving Allowance in March	Children for Whom Allowance Paid in March	Average Number of Children per Family in March	Average Allowance ¹		Net Total Allowances Paid during Fiscal Year
				Per Family	Per Child	
	No.	No.	No.	\$	\$	\$
Newfoundland.....	68,418	210,016	3.07	20.59	6.71	16,871,056
Prince Edward Island.....	14,191	40,201	2.83	19.12	6.75	3,266,459
Nova Scotia.....	105,163	269,845	2.57	17.24	6.72	21,776,091
New Brunswick.....	82,578	235,714	2.85	19.24	6.74	19,069,036
Quebec.....	780,305	2,037,605	2.61	17.60	6.74	163,888,091
Ontario.....	964,468	2,248,642	2.33	15.65	6.71	179,056,316
Manitoba.....	133,500	323,862	2.43	16.24	6.69	25,926,570
Saskatchewan.....	131,449	335,381	2.55	17.09	6.70	26,891,288
Alberta.....	212,630	525,976	2.47	16.57	6.70	41,996,327
British Columbia.....	247,635	573,714	2.32	15.58	6.73	45,745,199
Yukon and Northwest Territories.....	6,212	16,057	2.58	17.19	6.65	1,288,798
Canada.....1965	2,746,549	6,817,013	2.48	16.68	6.72	545,775,231
1964	2,711,272	6,736,157	2.48	16.67	6.71	538,312,224
1963	2,680,745	6,659,880	2.48	16.63	6.69	531,566,349
1962	2,649,317	6,562,287	2.48	16.58	6.69	520,781,193
1961	2,602,930	6,397,134	2.46	16.42	6.68	506,191,647

¹ Based on gross payment for March.

Subsection 4.—Youth Allowances

Legislation providing for a program of youth allowances was assented to on July 16, 1964 and became effective September 1964. The Federal Government does not provide youth allowances in Quebec which has its own program, but compensates that province by an amount equal to that which the Federal Government would otherwise have paid in allowances to Quebec residents.

Under the federal program, monthly allowances of \$10 are payable in respect of all dependent youths age 16 and 17 who are receiving full-time educational training or are precluded from doing so by reason of physical or mental infirmity. Both the parent or guardian and the youth must normally be physically present and living in a province other than Quebec. The allowance is not payable to a parent who does not reside in one of the nine provinces, even though his child may be attending school in Canada. A dependent youth may attend school in Quebec or outside Canada, or, if disabled, receive care or training in Quebec or outside Canada and still be considered eligible on the basis that he is a resident of one of the nine provinces but temporarily absent.

Allowances normally commence with the month following that in which family allowances cease and continue until the school year terminates. They are paid retroactively for the summer months on the commencement of the new school year. Allow-

ances for a disabled child not attending school, however, are payable continuously throughout the year. Should the youth leave school, leave the country permanently, cease to be maintained, take up residence in Quebec or die, the allowance will cease. Otherwise, the youth allowance continues until the end of the month in which the youth reaches age 18. Youth allowances are considered not to be income for any purpose of the Income Tax Act.

The program is administered by the Department of National Health and Welfare. The National Director of the family allowances and old age security programs also administers youth allowances, assisted by regional directors located in each of the provincial capitals.

The costs of youth allowances are met from the Consolidated Revenue Fund. For the seven months ended Mar. 31, 1965, the cost of youth allowances was estimated to be \$27,000,000. For the first full year of the program, that is the fiscal year ending Mar. 31, 1966, it is estimated that the cost will amount to \$48,000,000; additional funds will, of course, be expended in the form of compensation to the Province of Quebec. At the end of March 1965, youth allowances were being paid in respect of 398,037 children, excluding Quebec.

Section 2.—Federal-Provincial Programs

Subsection 1.—Canada Assistance Plan

Proposals for a Canada Assistance Plan that would complement the provisions of the Canada Pension Plan were announced in the Throne Speech on Apr. 5, 1965 and were discussed at a Federal-Provincial Conference of Ministers of Welfare on Apr. 8 and 9. Under the Plan, the Federal Government would be prepared to contribute, through comprehensive assistance programs adopted by the provinces, to the cost of assisting persons in need. Rates of assistance would be set by the provinces or their municipalities.

The plan would provide for extension of federal sharing to the costs of assisting needy mothers and of providing health care services to assistance recipients. Federal sharing would also cover expenditures for public assistance administration and for improving and extending welfare services for assistance recipients in order to encourage the development of services that would enable assistance recipients to achieve the greatest possible degree of self support.

Subsection 2.—Old Age Assistance

The Old Age Assistance Act of 1951, as amended, provides for federal reimbursement to the provinces for assistance to persons age 65 or over who are in need and who have resided in Canada for at least ten years or who, if absent from Canada during this period, have been present in Canada prior to the commencement of the ten-year period for double any period of absence. On reaching the eligible age a recipient is transferred to old age security. The federal contribution may not exceed 50 p.c. of \$75 a month or of the assistance paid, whichever is less. The province administers the program and, within the limits of the federal Act, may fix the amount of assistance payable, the maximum income allowed and other conditions of eligibility.

For an unmarried person, total income allowed, including assistance, may not exceed \$1,260 a year. For a married couple it may not exceed \$2,220 a year or, when the spouse is blind within the meaning of the Blind Persons Act, \$2,580 a year. Assistance is not paid to a person receiving an old age security pension or an allowance under the Blind Persons Act, the Disabled Persons Act, or the War Veterans Allowance Act.

Recipients of old age assistance who are in need may receive supplementary aid under general assistance programs in the provinces. In certain circumstances, the Federal Government may share in such aid under the Unemployment Assistance Act (see p. 325).

**3.—Old Age Assistance Statistics, by Province, Year Ended Mar. 31, 1965 with
Totals for 1961-65**

Province or Territory	Recipients in Month of March	Average Amount of Monthly Assistance	P.C. of Recipients to Population Age 65-69	Federal Government Contribution during Year ¹	
	No.	\$		\$	
Newfoundland.....	5,088	72.41	51.39	2,220,908	
Prince Edward Island.....	1,229	70.43	35.11	508,587	
Nova Scotia.....	5,574	68.53	26.42	2,302,860	
New Brunswick.....	5,356	70.28	33.69	2,303,178	
Quebec.....	39,239	70.35	31.17	16,589,045	
Ontario.....	26,049	67.03	13.78	10,465,257	
Manitoba.....	5,520	69.15	19.64	2,329,362	
Saskatchewan.....	5,463	69.04	20.01	2,294,105	
Alberta.....	6,810	69.00	20.33	2,901,039	
British Columbia.....	6,829	71.82	13.50	2,991,013	
Yukon Territory.....	31	75.00	10.33	13,880	
Northwest Territories.....	166	74.32	55.33	71,721	
Canada.....	1965	107,354	69.43	21.24	44,990,955
	1964	105,241	65.72	20.82	39,208,181
	1963	103,159	60.68	20.74	38,179,057
	1962	98,944	53.87	20.14	30,810,585
	1961	100,184	50.56	20.57	30,657,396

¹ Maximum assistance sharable by the Federal Government was increased from \$55 to \$65 a month as of February 1962 and to \$75 as of December 1963.

Subsection 3.—Allowances for Blind Persons

The Blind Persons Act of 1951, as amended, provides for federal reimbursement to the provinces for allowances to blind persons age 18 or over who are in need and who have resided in Canada for at least ten years. The federal contribution may not exceed 75 p.c. of \$75 a month or of the allowance paid, whichever is less. The province administers the program and, within the limits of the federal Act, may fix the amount of allowance payable and the maximum income allowed.

To qualify for an allowance a person must meet the required definition of blindness and have resided in Canada for ten years immediately preceding commencement of allowance or, if absent from Canada during this period, must have been present in Canada prior to its commencement for a period equal to double any period of absence. For an unmarried person, total income including the allowance may not exceed \$1,500 a year; for a person with no spouse but with one or more dependent children, \$1,980; for a married couple, \$2,580. When the spouse is also blind, income of the couple may not exceed \$2,700. Allowances are not payable to a person receiving assistance under the Old Age Assistance Act, an allowance under the Disabled Persons Act or the War Veterans Allowance Act, a pension under the Old Age Security Act or a pension for blindness under the Pensions Act.

Recipients of blindness allowances who are in need may receive supplementary aid under general assistance programs in the provinces. In certain circumstances, the Federal Government may share in such aid under the Unemployment Assistance Act (see p. 325).

**4.—Statistics of Allowances for the Blind, by Province, Year Ended Mar. 31, 1965
with Totals for 1961-65**

Province or Territory	Recipients in Month of March	Average Amount of Monthly Allowance	P.C. of Recipients to Population Age 20-69	Federal Government Contribution during Year ¹
	No.	\$		\$
Newfoundland.....	460	73.49	0.211	300,474
Prince Edward Island.....	71	73.47	0.139	51,020
Nova Scotia.....	750	73.41	0.197	509,671
New Brunswick.....	679	74.10	0.232	456,965
Quebec.....	2,843	73.47	0.098	1,892,813
Ontario.....	1,906	67.93	0.053	1,179,138
Manitoba.....	401	72.66	0.079	258,946
Saskatchewan.....	391	72.02	0.082	256,063
Alberta.....	475	72.36	0.064	311,992
British Columbia.....	556	73.15	0.059	372,208
Yukon Territory.....	5	75.00	0.059	2,666
Northwest Territories.....	49	74.39	0.412	32,746
Canada.....1965	8,586	72.10	0.085	5,624,702
	1964	8,581	0.085	4,989,897
	1963	8,634	0.087	4,881,829
	1962	8,573	0.087	4,129,852
	1961	8,642	0.089	4,161,833

¹ Maximum allowance sharable by the Federal Government was increased from \$55 to \$65 a month as of February 1962 and to \$75 as of December 1963.

Subsection 4.—Allowances for Disabled Persons

The Disabled Persons Act of 1954, as amended, provides for federal reimbursement to the provinces for allowances paid to permanently and totally disabled persons age 18 or over who are in need and who have resided in Canada for at least ten years immediately preceding commencement of allowance or, if absent from Canada during this period, have been present in Canada prior to its commencement for a period equal to double any period of absence. To qualify for an allowance a person must meet the definition of permanent and total disability set out in the Regulations to the Act which requires that a person must be suffering from a major physiological, anatomical or psychological impairment, verified by objective medical findings; the impairment must be one that is likely to continue indefinitely without substantial improvement and that will severely limit activities of normal living. The federal contribution may not exceed 50 p.c. of \$75 a month or of the allowance paid, whichever is less. The province administers the program and, within the limits of the federal Act, may fix the amount of allowance payable, the maximum income allowed and other conditions of eligibility.

For an unmarried person, total income including the allowance may not exceed \$1,260 a year. For a married couple the limit is \$2,220 a year except that if the spouse is blind within the meaning of the Blind Persons Act, income of the couple may not exceed \$2,580 a year. Allowances are not paid to persons receiving allowances under the Blind Persons Act or the War Veterans Allowance Act, assistance under the Old Age Assistance Act, pensions under the Old Age Security Act, or mothers' allowances.

The allowance is not payable to a patient in a mental institution or a tuberculosis sanatorium. A recipient who is resident in a nursing home, an infirmary, a home for the aged, an institution for the care of incurables, or a private, charitable or public institution is eligible for the allowance only if the major part of the cost of his accommodation is being paid by himself or another individual.

Recipients of disability allowances who are in need may receive supplementary aid under general assistance programs in the province. In certain circumstances the Federal Government may share in such aid under the Unemployment Assistance Act (see below).

5.—Statistics of Allowances for Disabled Persons, by Province, Year Ended Mar. 31, 1965 with Totals for 1961-65

Province or Territory	Recipients in Month of March	Average Amount of Monthly Allowance	P.C. of Recipients to Population Age 20-69	Federal Government Contribution during Year ¹
	No.	\$		\$
Newfoundland.....	1,746	74.63	0.799	750,279
Prince Edward Island.....	797	74.31	1.566	360,160
Nova Scotia.....	3,329	73.88	0.873	1,446,725
New Brunswick.....	2,263	74.36	0.775	987,471
Quebec.....	20,171	74.23	0.694	9,090,736
Ontario.....	17,222	73.23	0.481	7,378,219
Manitoba.....	1,538	73.96	0.304	679,916
Saskatchewan.....	1,780	74.18	0.373	784,760
Alberta.....	1,874	73.56	0.253	830,170
British Columbia.....	2,336	73.94	0.249	1,037,484
Yukon Territory.....	2	75.00	0.024	1,148
Northwest Territories.....	45	75.00	0.378	18,435
Canada.....1965	53,103	73.86	0.525	23,365,493
1964	51,671	69.48	0.511	20,206,543
1963	50,621	64.10	0.509	19,634,313
1962	50,029	58.07	0.509	16,433,611
1961	50,650	53.80	0.522	16,385,820

¹ Maximum allowance sharable by the Federal Government was increased from \$55 to \$65 a month as of February 1962 and to \$75 as of December 1963.

Subsection 5.—Unemployment Assistance

Under the Unemployment Assistance Act 1956, as amended, the Federal Government may enter an agreement with any province to reimburse it for 50 p.c. of the unemployment assistance expenditures made by the province and its municipalities to persons and their dependants who are unemployed and in need. All provinces and the two territories have signed agreements under the Act. The rates and conditions of assistance are determined by the provinces and, in some cases, by their municipalities. Payments to both employable and unemployable persons are sharable under the agreements, as are the costs of maintaining persons in homes for special care, such as nursing homes or homes for the aged. The Federal Government shares in additional assistance paid to needy persons in receipt of old age security pensions, old age assistance, blind persons' allowances, disabled persons' allowances and unemployment insurance benefits, where the amount of the assistance paid is determined through an assessment both of the recipient's basic requirements and of his financial resources.

6.—Unemployment Assistance, by Province, Year Ended Mar. 31, 1964 with Totals for 1960-64

Province	Recipients ¹ in March	Federal Share of Unem- ployment Assistance Costs ²	Province or Territory	Recipients ¹ in March	Federal Share of Unem- ployment Assistance Costs ²
	No.	\$		No.	\$
Newfoundland.....	59,090	4,565,680	British Columbia.....	93,763	16,918,569
Prince Edward Island.....	2,924	292,832	Yukon Territory.....	352	67,392
Nova Scotia.....	27,565	1,798,653	Northwest Territories.....	1,110	81,926
New Brunswick.....	31,114	1,743,488			
Quebec.....	253,295	39,130,901	Canada.....1964	733,489	106,497,974
Ontario.....	140,066	24,350,089	1963	754,164	96,184,792
Manitoba.....	31,282	4,952,050	1962	703,601	87,427,726
Saskatchewan.....	41,880	4,614,614	1961	562,720	59,707,964
Alberta.....	51,048	7,981,780	1960	322,553	38,201,087

¹ Includes dependants.

² Payment figures shown are for the months to which the claims made under the program relate and include amounts paid to the provinces by the Federal Government after the end of the fiscal year.

Subsection 6.—Fitness and Amateur Sport Program

The fitness and amateur sport program began in December 1961 when the Fitness and Amateur Sport Act, administered by the Minister of National Health and Welfare, came into effect, providing up to \$5,000,000 a year to be spent on the encouragement, promotion and development of active leisure pursuits for everyone in Canada. Although the federal, provincial and municipal governments provide the funds and resources, the programs are carried out almost entirely by non-governmental agencies. Under the Act, Canadian participation in active recreation and amateur sport can be promoted internationally, nationally, provincially and locally through financial assistance, technical guidance, the provision of teaching materials, assistance to training, research and the construction of facilities.

The National Advisory Council of Fitness and Amateur Sport advises the Minister of National Health and Welfare in fitness and amateur sport matters. Its 30 members are chosen for their interest and experience, with at least one member from each province. The Council studies and evaluates progress, recommends acceptance or rejection of applications for grants, and keeps in touch with national organizations with like interests.

The federal program has five elements. *Grants to National Organizations*, totalling more than \$1,000,000 a year, go to some 50 national fitness and sporting organizations to help train coaches, to improve standards of instruction, to increase participation in sports, to aid the holding of national and regional competitions, and to assist Canadian athletic teams at international competitions. *Grants for Athletic Events* of nation-wide interest assist in the holding of such events as the 1967 Pan-American Games in Winnipeg and the 1967 Canadian Winter Games in the Quebec area. *Grants for Training and Research* are made for graduate study in fitness and amateur sport, for research fellowships, and for scholarships and bursaries for undergraduate study in physical education and recreation. Grants are also made for research into matters related to fitness, and fitness research units have been established in some universities. The Canadian Documentation Centre on Fitness and Sport, located at the University of Ottawa, was established with the aid of funds from the program to provide a library and reference service. *Services of the Department of National Health and Welfare* include the provision of technical advice, training material and promotional aids. Visual aids for coaching, printed guides on particular sports and recreational activities, and technical information on the construction and use of facilities are being provided. "How To" kits, which include an illustrated

manual, a film to rouse interest in the subject and films in which techniques are demonstrated, as well as other films on sports and recreational activities, are available on loan from the Department's Fitness Film Library. Committees of the National Advisory Council meet frequently with the executives of sports organizations to discuss policy. A federal-provincial committee of government officials under the chairmanship of the Deputy Minister of Welfare advises on and co-ordinates governmental aspects of the program. The Department also co-ordinates work done by other federal agencies in fitness and amateur sport. Consultants of the Department collaborate with sports agencies and, on request, provide advice on the planning of activities and the use of funds. Grants to the Provinces of \$1,000,000 a year are made to those that enter into three-year cost-sharing agreements for provincial programs of fitness and amateur sports. The Federal Government meets 60 p.c. of the cost of projects and the full cost of the scholarships and bursaries. Applications for all grants at the provincial or local level are made in the first instance to the responsible provincial department.

The bulk of recreational activity occurs in the individual community and municipal recreation departments co-ordinate community effort, provide continuity for voluntary organizations, and make long-range recreational plans. Thus, most ideas originate in the municipal recreation departments where the needs of the communities are best known.

Subsection 7.—National Welfare Grant Program

The National Welfare Grant Program, established in November 1962, is designed to help develop and strengthen welfare services in Canada. For the year ending Mar. 31, 1966, \$1,500,000 was allocated to the program, an amount scheduled to grow at the rate of \$500,000 a year until an annual total of \$2,500,000 is reached. The program consists of a General Welfare and Professional Training Grant and of a Welfare Research Grant. Provincial governments, municipal welfare departments, non-governmental welfare and correctional agencies, universities and individuals may be the ultimate recipients of grants under one or more provisions of the program. Some are financed and administered entirely by the Federal Government; others require application through a provincial department of welfare, which actually makes the award on a cost-sharing basis with the Federal Government.

General welfare, bursary, training and staff development grants are shared provisions. General welfare grants provide funds for projects to improve welfare administration, to develop provincial consultative and co-ordinating services, and to strengthen and extend public and voluntary welfare services in child welfare, aging, general assistance and other welfare fields. Bursaries are provided for full-time graduate training at Canadian schools of social work, and training grants are available for employees of government and voluntary welfare agencies. Staff development grants provide support for a wide variety of staff training programs for personnel employed, or to be employed, in public and non-governmental welfare agencies.

The other provisions of the program are administered and financed by the Federal Government. Welfare scholarships are awarded, on the basis of annual nation-wide competition, for graduate study in Canadian schools of social work. Fellowships are awarded in the same way for advanced study at Canadian and foreign universities to applicants who have demonstrated leadership qualities and ability in the fields of administration, teaching and research in Canadian welfare. Teaching and field instruction grants assist Canadian schools of social work with the salaries of additional staff required to implement the welfare grant program.

Under the Welfare Research Grant, funds are provided for a variety of surveys, studies and research projects undertaken by public and voluntary welfare and correctional agencies, universities and research institutions.

**7.—Expenditures under the National Welfare Grants Program, by Province,
Year Ended Mar. 31, 1964**

Province or Territory	Research	Bursaries	Fellow- ships and Scholar- ships	Training Grants	Teaching and Field In- struction	Staff Develop- ment	Welfare Services	Total
	\$	\$	\$	\$	\$	\$	\$	\$
Newfoundland.....	—	600	—	3,579	—	5,173	—	9,352
Nova Scotia.....	1,667	—	—	8,109	5,522	4,961	—	20,259
New Brunswick.....	560	2,474	—	2,087	—	4,798	—	9,919
Quebec.....	—	—	5,858	—	—	—	—	5,858
Ontario.....	32,174 ¹	13,889	32,189	1,514	37,545	15,545	21,005	153,861
Manitoba.....	—	2,325	1,328	12,865	16,817	—	—	33,335
Saskatchewan.....	6,876	5,389	—	9,622	—	—	—	21,887
Alberta.....	—	—	2,009	5,585	—	3,779	9,379	20,752
British Columbia.....	16,675 ¹	500	16,281	1,460	13,476	3,383	14,402	66,177
Yukon Territory.....	—	—	—	1,370	—	—	—	1,370
Canada.....	57,952	25,177	57,665	46,191	73,360	37,639	44,786	342,770

¹ Includes payments made to schools of social work and to voluntary agencies located in the province.

Subsection 8.—Vocational Rehabilitation

The nation-wide vocational rehabilitation program, started in 1952, was consolidated and extended under the Vocational Rehabilitation of Disabled Persons Act, 1961. Under federal-provincial agreements to share equally the costs of co-ordination, assessment and provision of services to disabled individuals, of training personnel and of research, the provinces have developed comprehensive programs in co-operation with existing services. Approved services comprise medical, social and vocational assessment, counselling, restorative services, vocational training and employment placement. They are designed to assist individuals having a substantial physical or mental disability to become vocationally useful in gainful employment or in the home. A provincial co-ordinator of rehabilitation is responsible for the co-ordination and administration of vocational rehabilitation services to disabled individuals in each province. In 1965, the provincial staff employed in vocational rehabilitation totalled 230.

The National Co-ordinator of Rehabilitation in the federal Department of Labour administers the federal aspects of this program. The National Advisory Council on the Rehabilitation of Disabled Persons advises the Minister of Labour and is composed of representatives of the provinces, employers, labour, the medical profession, national voluntary agencies and the universities. In the year ended Mar. 31, 1965, federal-provincial expenditures under the program (exclusive of vocational training) totalled \$1,284,424. Full reports were received on 2,179 disabled persons rehabilitated during the year; before rehabilitation most of these persons and their dependants relied on private or public assistance for support at an estimated annual cost of \$1,500,000 but following rehabilitation the estimated amount earned by those gainfully employed was \$4,600,000.

In 1958, with the establishment of the Division on Older Workers, the Department of Labour's educational efforts designed to encourage a more favourable employment climate for older workers became centred in the National Co-ordinator's office. The functions of the Division include the development of a long-range educational program; the encouragement of research; the maintenance of liaison with employer and labour organizations and voluntary agencies in Canada and other countries; and the assembly and dissemination of information. The Division is becoming widely known as a central source of information on the employment problems of older persons.

Medical rehabilitation, vocational training and special employment services for the handicapped are available as integral parts of the federal-provincial rehabilitation program. The Technical and Vocational Training Assistance Act, administered by the

Department of Labour, provides for equal sharing by Canada and the provinces of the cost of approved programs for the training of disabled persons for gainful employment. During 1964-65 there were 3,981 disabled persons enrolled in various courses; federal payments amounted to \$655,000. Referrals for job placement are made to some 380 Special Services Officers in 144 local offices. Special placements of handicapped persons who required assistance in finding work in 1964-65 (including those referred from provincial rehabilitation authorities) numbered 22,198.

Other Federal Government programs providing direct services for particular groups are administered by the Department of Veterans Affairs for disabled, chronically ill and aged veterans, by the Department of Citizenship and Immigration for disabled and handicapped Indians, and by the Department of Northern Affairs and National Resources for the training and resettlement of disabled Eskimos and Indians within its jurisdiction.

Section 3.—Provincial Welfare Programs

Major welfare programs governed by provincial legislation include mothers' allowances, general assistance and social allowances, services for the aged, and child care and protection. In most provinces responsibility for a number of the programs is shared by the provinces and their municipalities. Provincial administration of welfare services is carried out through the department of public welfare in each province; several departments have established regional offices to facilitate administration and to provide consultative services to the municipalities.

Provincial departments of public welfare are placing increasing emphasis on standards of administration and on rehabilitative services for social assistance recipients. All provinces continue to extend and improve services on behalf of older citizens and efforts are being made to assess their particular needs. In Ontario, for example, a Select Committee on Aging was established on May 8, 1964 to enquire into problems of major concern to older citizens and to make appropriate recommendations to the Legislature.

The main efforts in child welfare have been directed toward improvement of standards and greater flexibility of services, with particular emphasis on preventive casework services for children in their own homes, development of specialized children's institutions, group-living homes, and the finding of adoption homes for all children in need of them.

The public services are supplemented by those of an impressive number of voluntary agencies whose interests include the welfare of families and children and of groups with special needs, such as the aged, recent immigrants, youth groups and released prisoners. Welfare councils and social planning councils contribute to the planning and co-ordinating of local welfare services. Local voluntary agencies and institutions may receive public grants, depending on the nature and standard of the services they render, although, with the exception of the semi-public children's aid societies, their main support may be from united funds or community chests, or from sponsoring organizations.

Subsection 1.—Mothers' Allowances

All provinces make provision for allowances to needy mothers. A number of provinces include such allowances in a broadened program of provincial allowances to several categories of persons with long-term need or have incorporated this legislation with general assistance within a single Act, while continuing separate administration. In British Columbia, on the other hand, aid is provided to needy mothers under the general assistance program on the same basis as to other needy persons.

Subject to conditions of eligibility which vary from province to province, mothers' allowances or their equivalents are payable from provincial funds to applicants who are widowed, or whose husbands are mentally incapacitated or are physically disabled and unable to support their families. They are also payable to deserted wives who meet

specified conditions; in several provinces to mothers whose husbands are in penal institutions, or who are divorced or legally separated; in some, to unmarried mothers; and in Ontario, Quebec and Nova Scotia to Indian mothers. Foster mothers are eligible under certain circumstances in most provinces.

The age limit for children is 16 years in most provinces, with provision made to extend payment for a specified period if the child is attending school or if he is physically or mentally handicapped. In all provinces applicants must satisfy conditions of need and residence but the amount of outside income and resources allowed and the length of residence required prior to application vary, the most common period being one year. One province has a citizenship requirement.

8.—Mothers' Allowances, by Province, as at Mar. 31, 1964 with Totals for 1960-64

Province	Families Assisted	Children Assisted	Payments during the Year Ended Mar. 31
	No.	No.	\$
Newfoundland.....	5,172	14,418	5,100,590
Prince Edward Island.....	314	778	212,265
Nova Scotia.....	3,331	8,100	2,533,311
New Brunswick.....	2,254	6,364	2,030,948
Quebec.....	19,222	54,366	22,538,118
Ontario ¹	10,700	27,600	15,553,856
Manitoba.....	1,845	4,150	2,776,762
Saskatchewan.....	2,466	6,255	3,669,427
Alberta ²	931	1,760	1,009,867
British Columbia.....	8	8	3
Canada⁴.....	46,235	123,791	55,425,144
1963.....	45,240 ³	120,229 ³	50,641,496
1962.....	45,477	117,384	48,104,508
1961.....	45,918	119,423	46,245,303
1960.....	43,937	114,469	44,884,971

¹ Includes dependent fathers assisted under the General Welfare Assistance Act. ² An additional 3,275 families with 9,774 children were assisted under Part III of the Public Welfare Act; cost of allowances for this group is not available separately. ³ Caseload merged with social assistance; no separate figures available. ⁴ Exclusive of British Columbia.

Subsection 2.—General Assistance

All provinces make legislative provision for general assistance on a means or needs test basis to needy persons and their dependants who cannot qualify for other forms of aid, and some provinces include those whose benefits under other programs are not adequate. Where necessary, the aid may be for maintenance in homes for special care. Besides financial aid for the basic needs of food, clothing, shelter and utilities, a number of provinces also provide incapacitation or rehabilitation allowances, counselling and home-making services, and post-sanatorium care. This assistance is administered by the province or by the municipalities with substantial financial support from the province, which, in turn, is reimbursed by the Federal Government under the Unemployment Assistance Act for 50 p.c. of the provincial and municipal assistance given (see p. 325).

The provincial departments of public welfare have regulatory and supervisory powers over municipal administration of general assistance and may require certain standards as a condition of provincial aid. Length of residence is not a condition of aid in any province, but the residence of the applicant as defined by statute determines which municipality may be financially responsible for his aid. This rule does not apply in three provinces; British Columbia and Saskatchewan have equalized municipal payments and Quebec does not require its municipalities to contribute to general assistance costs. Provinces with unorganized areas take responsibility for aid in these districts. Under the federal Unemployment Assistance Act, all provinces have agreed that residence shall not be a condition of assistance for applicants who move from one province to another. For persons without

provincial residence (usually a period of one year), aid may be given by the province or the municipality and a charge-back may or may not be made to the province or municipality of residence.

The formula for provincial-municipal sharing of costs is determined by the province. A substantial proportion of the costs of aid given to needy persons is borne by the province through the assumption by the province of responsibility for aid to certain categories of persons and through reimbursement of municipal expenditures.

A number of provinces provide provincially administered allowances to persons with long-term need: persons who are unable to support themselves because of mental or physical disability or because of their age, mothers with dependent children and, in two provinces (Ontario and Quebec), needy widows and unmarried women of 60 years of age or over. Municipalities are reimbursed for costs of aid given under municipally administered programs in amounts that vary by province from 40 p.c. to 100 p.c. In Nova Scotia and New Brunswick, the province also reimburses the municipalities for 50 p.c. of the costs of administration and, in British Columbia, the province shares with the municipalities expenditures on the salaries for social workers. In Newfoundland all aid is provincially administered.

Subsection 3.—Living Accommodation for Elderly Persons

In all provinces, homes for the aged and infirm are provided under provincial, municipal or voluntary auspices. These homes are required to meet standards set out in provincial legislation relating to homes for the aged, welfare institutions, or public health. Voluntary homes are usually provincially inspected and in some provinces must be licensed.

Most of the provinces make capital grants toward the construction or renovation of homes for the aged by municipalities or voluntary organizations and exempt homes for the aged from municipal taxation; some guarantee the repayment of loans made for the construction of homes. Most provinces also make provision for capital grants to municipalities, voluntary organizations, or limited-dividend companies for the construction of low-rental housing for the elderly. These projects are usually built under Sect. 16 of the National Housing Act, which provides for long-term low-interest loans to limited-dividend companies constructing low-rental self-contained or hostel accommodation for the elderly. Units for the elderly may also be included in low-rental public housing projects for families built under Sect. 35 of the National Housing Act. Three provinces guarantee the repayment of loans made for the construction of low-rental housing, and one province pays an annual maintenance grant for such housing.

In some provinces efforts are made to place well, elderly people in small proprietary boarding homes. Elderly persons who are chronically ill may be cared for in chronic or convalescent hospitals, private or public nursing homes and some homes for the aged. All provinces contribute to the maintenance of needy persons in homes for the aged or other homes for special care, and these costs are shared by the Federal Government under the Unemployment Assistance Act (see p. 325).

The Province of Ontario has given an impetus to the provision of recreational centres for the elderly through the passing in 1962 of the Elderly Persons Social and Recreational Centres Act. This Act provides for a provincial grant of up to 30 p.c. of the cost of constructing or acquiring a building for use as a centre if the local municipality contributes 20 p.c. of the cost.

Subsection 4.—Child Care and Protection

Child welfare services, which include child protection and care, services for unmarried parents and adoption services, are provided in all provinces under provincial legislation and are administered by a division of child welfare within the provincial department of welfare. The program may be administered by the provincial authority or the responsibility may be delegated to local children's aid societies, that is, to voluntary agencies with

boards of directors, operating under charter and under the general supervision of provincial departments; in Quebec, child welfare services are administered by recognized voluntary agencies and institutions, religious and secular. In Newfoundland, Prince Edward Island, Saskatchewan and, to a large extent, in Alberta, they are administered by the province; in the larger urban centres of Alberta there is some delegation of authority to the municipality. In Ontario and New Brunswick, a network of local children's aid societies, operating under statutory authority, is responsible for the services. In Nova Scotia, Manitoba and British Columbia, services are administered by local children's aid societies in the heavily populated areas and by the province in other areas.

Children's aid societies and the recognized agencies in Quebec receive substantial provincial grants and sometimes municipal grants and in many areas they also receive support from private subscriptions or from community chests or united funds. Maintenance costs for children in care of a voluntary or public agency may be borne entirely by the province—as in Alberta, Saskatchewan, Manitoba, Prince Edward Island and Newfoundland—or partly by the municipality of residence and partly by the province.

The child welfare agencies, provincial or private, have the authority to investigate cases of alleged neglect and, if necessary, to apprehend a child and to bring the case before a judge upon whom rests the responsibility of deciding whether in fact the child is neglected. When neglect is proven, the court may direct that the child be returned to his parent or parents, under supervision, or be made a ward of the province or a children's aid society or, in Quebec, be placed under the authority of a suitable person or agency whose services may involve casework with families in their own homes, or care may be provided in foster boarding homes, in adoption homes or, for children who need this form of care, in selected institutions. Children placed for adoption may be wards or they may be placed on the written consent of the parent. Adoptions, including those arranged privately, number about 13,000 annually.

Child welfare agencies make use of the small selective institution for placement of children who are forced to be away from their own homes for a short period or who may need preparation for placement in foster homes, and emphasis is increasingly being placed on group-living homes. The development of small, highly specialized institutions, which function as treatment centres for emotionally disturbed children, is of particular significance. Institutions for children are governed by provincial child welfare legislation or by special statutes dealing with welfare institutions, and by provincial or municipal public health regulations. The institutions are generally subject to inspection and in some provinces to licensing, and are usually required to make reports to the province on the movement of children under their care. Sources of income may include private subscriptions, provincial grants, and maintenance payments on behalf of children in care, payable by the parents, the placing agency or the responsible municipal or provincial department.

Services to unmarried parents include casework services to the mother and possibly to the father, legal assistance in obtaining support for the child from the father, and foster-home care or adoption services for the child. Support for unmarried mothers may be obtained under general assistance programs. In many centres, homes for unmarried mothers are operated under private or religious auspices.

Day nurseries for the children of working mothers are established only in the larger centres and chiefly under voluntary auspices. Licensing is required in five provinces but Ontario is the only province with a Day Nurseries Act.

Section 4.—International Welfare

Canada plays an active role in a number of international agencies concerned with social welfare development. These include the United Nations Social Commission, which studies and reports on world social conditions, including such special aspects as levels of living, community development, social services and social defence. Canada is a member of the Executive Board of the United Nations Children's Fund (UNICEF) which provides

assistance to mothers and children in less-developed countries. Other international agencies with welfare interests, in whose work Canada participates, include the International Labour Organization (see Index) and the International Social Security Association. Through the Colombo Plan and other bilateral aid programs, Canada provides social welfare assistance as well as other kinds of help to developing countries (see pp. 171-174).

In addition to these activities and contributions by the Canadian Government, Canadian voluntary agencies are also active in providing aid to developing countries and participating in international discussions of welfare matters.

This work, whether governmental or voluntary, has taken on new significance in the United Nations Development Decade, with the growing realization throughout the world that progress depends upon people as much as upon machines and materials. Having pioneering experience in many fields of social development, Canada is equipped to give special assistance in the promotion of human welfare abroad.

PART III.—HEALTH AND SOCIAL WELFARE EXPENDITURES

Section 1.—Government Expenditures on Health and Social Welfare

In the six years ended Mar. 31, 1959-64, expenditures of all levels of government on health and social welfare rose from \$2,821,000,000 to \$4,087,000,000, an increase of almost 45 p.c. If these figures are adjusted to take account of the growth in population, the increase in per capita expenditures—from \$164 to \$215—was somewhat less at about 31 p.c. Government expenditures may also be measured in relation to major economic indicators; on this basis, annual government expenditures on health and social welfare rose over the 1959-64 period from 11.1 p.c. to 12.3 p.c. of the net national income and from 8.4 p.c. to 9.3 p.c. of the gross national product. The federal share of health and social welfare expenditures fell from 73.9 p.c. in 1958-59 to 68.5 p.c. in 1963-64, the provincial share rose from 22.2 p.c. to 28.5 p.c. and municipal outlays declined from 3.9 p.c. to 3.0 p.c.

Of considerable interest is the growing proportion of government expenditures on health and social welfare taken up by health programs; in 1958-59 such programs accounted for \$624,000,000 or 22 p.c. of the total and in 1963-64 for \$1,365,000,000 or almost 34 p.c.

An outline of the principal components for 1963-64 shows the magnitude of the major programs and services—family allowances payments amounted to \$538,000,000, old age security payments to \$808,000,000, unemployment insurance benefits to \$366,000,000, veterans pensions and allowances to \$173,000,000 and \$83,000,000, respectively, and payments from the Prairie Farm Emergency Fund to \$10,000,000. These income-maintenance programs were entirely the responsibility of the Federal Government.

Federal-provincial income-maintenance programs required expenditures of \$78,000,000 for old age assistance, \$7,000,000 for blindness allowances, \$40,000,000 for disabled persons allowances and over \$214,000,000 for unemployment assistance, the latter including some municipal expenditure. Workmen's Compensation Boards spent \$112,000,000 on cash benefits for pensions and compensation and the provincial governments spent about \$43,000,000 on mothers' allowances. Welfare services for Indians and for veterans and the national employment service accounted for \$38,000,000 at the federal level and child welfare services required an expenditure of almost \$51,000,000 by provincial governments.

In the field of health, federal grants to the provinces under the Hospital Insurance and Diagnostic Services Act totalled \$392,000,000 and grants for hospital construction and general health grants to the provinces and municipalities amounted to \$53,000,000. The Federal Government spent \$29,000,000 on its Indian and Northern Health Services

and \$46,000,000 on hospital and treatment services for veterans. Provincial expenditures on hospital care are estimated to have totalled \$620,000,000, and \$80,000,000 was spent on other health services. Workmen's Compensation Boards paid \$48,000,000 for medical aid and hospitalization, and municipal governments spent \$79,000,000 on health.

1.—Total, per Capita and Percentage Distribution of Government Expenditures on Health and Social Welfare, by Level of Government, Years Ended Mar. 31, 1959-64

Year Ended Mar. 31—	Federal	Provincial	Municipal	Total
EXPENDITURES				
	\$'000,000	\$'000,000	\$'000,000	\$'000,000
1959.....	2,084.7	627.4	109.3	2,821.3
1960.....	2,162.2	754.7	106.4	3,023.3
1961.....	2,359.9	885.7	109.0	3,354.6
1962.....	2,575.8	998.1	107.8	3,681.8
1963.....	2,682.3	1,082.7	117.3	3,882.2
1964.....	2,799.7	1,164.4 ¹	123.0 ¹	4,087.1
PER CAPITA EXPENDITURES				
	\$	\$	\$	\$
1959.....	121.53	36.57	6.37	164.47
1960.....	123.20	43.00	6.06	172.27
1961.....	131.28	49.27	6.06	186.62
1962.....	140.32	54.37	5.87	200.57
1963.....	143.57	57.95	6.28	207.79
1964.....	147.26	61.25	6.47	214.98
PERCENTAGE DISTRIBUTION				
1959.....	73.9	22.2	3.9	100.0
1960.....	71.5	25.0	3.5	100.0
1961.....	70.4	26.4	3.2	100.0
1962.....	70.0	27.1	2.9	100.0
1963.....	69.1	27.9	3.0	100.0
1964.....	68.5	28.5	3.0	100.0

¹ Estimated.

Section 2.—Expenditures on Personal Health Care

Expenditures made on personal health care services, for the purposes of this Section, include the amounts spent by hospitals and the amounts received by physicians, dentists, pharmacists for prescription services, and by other paramedical professionals in the provision of health care and treatment directly to individuals. No attempt is made to include expenditures on public health, or public or private capital expenditures such as the building or extension of hospitals or other health facilities. Also excluded are the cost of administration of public health programs and other technical services as well as the cost of administering voluntary profit or non-profit health insurance plans. On the other hand, expenditures by the three levels of government on behalf of individuals are included.

Canadians spent an estimated \$1,993,000,000 in 1963 on personal health care, which is almost two and a half times the \$804,000,000 they spent in 1954. The annual rates of increase varied from 8.2 p.c. in 1955 to 13.6 p.c. in 1956, their average being 10.6 p.c. The per capita expenditure, which was \$52.59 in 1954, rose to \$97.40 in 1962 and an estimated \$105.47 in 1963. The population increase during the period was 23.6 p.c.

The proportion of the gross national product represented by expenditures on personal health care was 3.2 p.c. in 1954 and 4.6 p.c. in 1963. Thus, one in every \$22 of production in Canada in 1963 was for personal health care goods and services as compared with one in every \$31 nine years previously.

Payments received by physicians and surgeons for providing personal medical care services comprise about 23 p.c. of total expenditures on personal health care, and were \$456,000,000 in 1963.

2.—Expenditures on Personal Health Care, 1954-63

NOTE.—Figures exclude expenditures on public health and expenditures for capital purposes.

Year	Hospital Services					Physicians' Services	Prescribed Drugs ^{2,6}	Dentists' Services	Other ^{4,7}	Total ⁴
	Active Treatment ¹	Mental ²	Tuberculosis ²	Federal ³	All Hospitals ⁴					
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
1954..	314.0	64.5	30.4	37.9	446.8	183.6	52.1	66.4	50.0	803.9
1955..	342.4	68.9	29.9	38.8	480.1	206.5	59.5	68.6	55.0	869.7
1956..	380.8	77.6	30.6	40.8	529.9	240.1	71.8	81.5	65.0	988.3
1957..	422.9	87.5	31.0	45.3	586.8	269.2	84.5	87.3	70.0	1,087.8
1958..	462.3	99.0	30.4	48.4	640.1	295.5	90.3	98.1	85.0	1,209.0
1959..	542.6	111.6	29.6	50.3	734.1	326.8	106.5	100.1	95.0	1,362.5
1960..	625.2	120.2	30.1*	53.9	829.4*	346.5	114.4*	112.4	105.0	1,507.7*
1961..	714.8	132.8	29.9*	56.8	934.3*	374.0	121.3*	118.8	115.0	1,663.4*
1962..	782.4	141.7	29.5	60.1	1,013.7	419.3	127.0	123.8	125.0	1,808.8
1963..	879.4	158.9	28.4	63.9	1,130.6	456.4	136.2	134.8	135.0	1,993.0

¹ Includes gross expenditures of public and private acute, chronic and convalescent hospitals in 1954-57, and in non-participating provinces, in 1958-60; includes gross expenditures of budget review and contract hospitals in 1961-63 and, in participating provinces, in 1958-60; excludes expenditures of mental, tuberculosis and federal hospitals.

² Includes gross expenditures of public and private hospitals; excludes expenditures of federal hospitals.

³ Includes acute, chronic, convalescent, mental and tuberculosis hospitals of the Department of National Health and Welfare and the Department of Veterans Affairs; excludes hospitals of the Department of National Defence.

⁴ Items may not add to totals because of rounding.

⁵ Sold by retail drugstores only.

⁶ Estimated.

⁷ Includes estimated expenditures for services of private duty nurses, chiropractors, osteopaths and optometrists; excludes all employees of hospitals.

PART IV.—NATIONAL VOLUNTARY HEALTH AND WELFARE ACTIVITIES

A number of national voluntary agencies carry on important work in the provision of health and welfare services, planning research and education, supplementing the services of the federal and provincial authorities in many fields and playing a leading role in stimulating public awareness of health and welfare needs and in promoting action to meet them. The functions of twenty important voluntary agencies are described in the 1962 Year Book at pp. 270-274.

Voluntary Medical Insurance.—About 10,800,000 Canadians, or 56 p.c. of the population of Canada, had voluntarily secured some protection against the costs of physicians' services at the end of 1964. This protection was provided by 62 non-profit plans with an enrolment of 6,450,000, and 79 private companies giving coverage to an estimated 5,250,000 persons; overlapping enrolment in the two groups amounted to about 900,000. The 10,800,000 net total was 4,900,000 above the 1955 figure, which represented only 38 p.c. of the population.

The non-profit plans took in about \$191,600,000 in premiums and \$4,300,000 in other revenue in 1964, paid out \$174,000,000 in benefits and \$13,500,000 for administration, and were left with a surplus of approximately \$8,400,000. Thus, for every dollar

of premiums, 91 cents were paid out in benefits, which amounted to approximately \$29.67 per person covered. In 1955, benefit payments had been \$11,400,000, representing 89 cents of the premium dollar and amounting to only \$13.17 per person.

Profit-making private companies wrote \$119,700,000 of premiums for health protection in 1964. They paid out \$92,000,000 in claims.

PART V.—VETERANS SERVICES*

The Department of Veterans Affairs administers most of the legislation known collectively as the Veterans Charter and also provides administrative facilities for the Canadian Pension Commission, which administers the Pension Act and Parts I to X of the Civilian War Pensions and Allowances Act; for the War Veterans Allowance Board, which administers the War Veterans Allowance Act and Part XI of the Civilian War Pensions and Allowances Act; and for the Secretary General (Canada) of the Commonwealth War Graves Commission.

The principal benefits now available to veterans are medical treatment for those eligible to receive it, land settlement and home construction assistance, educational assistance for the children of the war dead, veterans insurance, general welfare services, unused re-establishment credit, disability and widows pensions and war veterans allowances. The work of the Department, except the administration of the Veterans' Land Act, is carried out through 17 district offices and five sub-district offices in Canada and one district office in England; the benefits of the Veterans' Land Act are administered through seven district offices and 25 regional offices across Canada.

In the Department's continuing efforts to foster the memory of Canada's war dead, ceremonies were held in Europe in June 1964 commemorating Canadian participation in and honouring the dead of both World Wars. During the 1964 Royal Visit, Her Majesty the Queen, accompanied by His Royal Highness the Prince Philip, laid a wreath on Canada's 1914-1918 National War Memorial in Ottawa, to commemorate Canada's dead of all wars. Commemoration ceremonies were also held in April 1965 to mark the heroic stand of the Canadian Expeditionary Force against the first gas attacks at St. Julien, Belgium, in April 1915. On May 17, 1965, a new 75-bed Veterans Home was opened in Saskatoon, Sask., replacing buildings erected a quarter of a century earlier. On May 24, 1965, the Queen's Scarf, awarded for conspicuous gallantry under fire in the South African War, became part of the Canadian heritage when it was presented to the Governor General of Canada in a moving ceremony on Parliament Hill. The Scarf, one of eight crocheted by Queen Victoria shortly before her death, was won by Private Richard Rowland Thompson, originally of Cork, Ireland, who served with the Canadian Forces in the South African War and was the only member of the Canadian Forces so honoured. The Scarf now rests in the Canadian War Museum at Ottawa.

Section 1.—Pensions and Allowances

Disability and Dependants Pensions

Canadian Pension Commission.—The Canadian Pension Commission administers the Pension Act (RSC 1952, c. 207, as amended) and Parts I to X of the Civilian War Pensions and Allowances Act (RSC 1952, c. 51, as amended). The members of the Commission are appointed by the Governor in Council who may also impose upon the Commission duties in respect of any grants in the nature of pensions, etc., made under any statute other than the Pension Act. It reports to Parliament through the Minister of Veterans Affairs.

* Prepared by the Department of Veterans Affairs, Ottawa.

The Commission has district offices in principal cities across Canada with a Senior Pension Medical Examiner in charge and also is represented by a Senior Pension Medical Examiner in London, England, located in the district office of the Department of Veterans Affairs in that city.

The Pension Act.—Previous issues of the Year Book contain information on the development of Canadian pension legislation together with yearly statistics of numbers and liabilities.

The Pension Act makes provision for the payment of pensions in respect of disability or death resulting from injury or disease incurred during or attributable to service with the Canadian Navy, Army or Air Force in time of war or peace. Provision is also made for supplementing, up to Canadian rates, awards of pension to or in respect of Canadians for disability or death suffered as a result of service in the British or Allied Forces during World War I or World War II, or payment of pension at Canadian rates in cases where the claim has been rejected by the government of the country concerned.

Appropriation Act No. 10, Schedule D (SC 1964-65, c. 34), which received Royal Assent Dec. 2, 1964, made provision for the following increases in rates under the Pension Act, retroactive to Sept. 1, 1964: basic rates of pension for disability and death increased; maximum rate of attendance allowance increased from \$1,800 to \$3,000 per annum; rate of clothing allowance for leg amputations increased from \$96 to \$108 per annum and for arm amputations from \$42 to \$48 per annum; maximum rate of clothing allowance authorized for pensioners who wear appliances that cause excessive wear and tear of clothing increased from \$96 to \$108 per annum; and maximum pension payable to a parent in cases in which pension is in payment to a widow or divorced wife or a woman eligible by virtue of Section 36(4) of the Act increased from \$576 to \$636 per annum. The total estimated increase in annual liability as a result of these increases was about \$17,500,000.

Awards to disability pensioners and their dependants and to widows and their dependants, as well as rates of clothing allowance for leg and arm amputations, are statutory and adjustments to the new rates were made by Treasury Branch without reference to the Commission. However, the other increases in rates necessitated a review of over 8,600 cases.

The following gives a comparison of the new basic rates with those formerly in effect and applies to all ranks up to and including Colonel and equivalent ranks:—

<i>Item</i>	<i>Annual Rate Formerly in Effect</i>	<i>Annual Rate Effective Sept. 1, 1964</i>
	\$	\$
Man with 100 p.c. disability ¹	2,160	2,400
Additional Pension, if Married—		
Wife.....	720	768
One child.....	324	360
Two children.....	564	624
Each additional child.....	192	216
Widow.....	1,656	1,824
One child.....	648	720
Two children.....	1,128	1,248
Each additional child.....	384	432

¹ For assessments lower than 100 p.c., the awards are proportionately less.

Slightly higher rates of personal pension are payable for ranks above those mentioned and although these were not increased, as the additional pension for a wife and children remains the same for all ranks, a married disability pensioner who held a higher rank at the time the disability was incurred will benefit by the increased additional pension.

Attendance allowance, which is payable to a pensioner who is totally disabled, helpless and in need of attendance, and which varies from a minimum of \$480 to the new maximum

of \$3,000 depending on the degree of attendance required, is paid in addition to pension. Although a pensioner must be totally disabled to receive this allowance, the disability resulting in the need of attendance may be non-pensionable.

The Civilian War Pensions and Allowances Act, Parts I to X, makes provision for the payment of pensions to or on behalf of persons who during World War II served in certain civilian groups that were closely associated with the war effort and who suffered injury or death as a result of such service; these include merchant seamen, saltwater fishermen, auxiliary services personnel, ferry pilots of the RAF Transport Command, firefighters who served in Britain, etc.

1.—Pensions in Force under the Pension Act as at Dec. 31, 1964

Service	Disability		Dependant		Disability and Dependant	
	Pensions in Force	Liability	Pensions in Force	Liability	Pensions in Force	Liability
	No.	\$	No.	\$	No.	\$
World War I.....	36,836	37,339,925	14,248	25,025,316	51,084	62,365,241
World War II.....	106,567	92,490,722	16,293	24,214,862	122,860	116,705,584
Peacetime.....	1,901	1,285,587	583	1,194,535	2,484	2,480,122
Special Force.....	1,808	1,371,120	181	291,084	1,989	1,662,204
Totals.....	147,112	132,487,354	31,305	50,725,797	178,117	183,213,151

War Veterans Allowances and Civilian War Allowances

War Veterans Allowance Board.—The War Veterans Allowance Board is a quasi-judicial body, consisting of eight members, including a Chairman and a Deputy Chairman, appointed by the Governor in Council. The Board administers the War Veterans Allowance Act and Part XI of the Civilian War Pensions and Allowances Act and reports to Parliament through the Minister of Veterans Affairs. A detailed outline of the Board's functions and responsibilities is given in the 1961 Year Book, p. 302.

War Veterans Allowances.—The purpose of the War Veterans Allowance Act is to provide an allowance to otherwise eligible veterans, widows and orphans who, because of age or incapacity, are unable to derive their maintenance from employment and have insufficient means. Since its inception on Sept. 1, 1930, the Act has been amended 12 times, the last time in 1964. This latest amendment, which was effective Sept. 1, 1964, provided for increases in the rates of allowances and in the income ceilings. The present rates are as follows:—

<u>Item</u>	<u>Monthly Rate</u>	<u>Annual Income Ceiling</u>
	\$	\$
Single.....	94	1,596
Married.....	161	2,864
One orphan.....	60	1,008
Two orphans.....	105	1,608
Three or more orphans.....	141	2,016

The increases in the single and married ceilings permitted the removal of the anomaly that existed prior to Sept. 1, 1964, whereby recipients over the age of 70 were permitted an exemption of a portion of Old Age Security Pension as income and, therefore, had a greater annual income ceiling than those under the age of 70. The restrictions governing personal property and real property are shown in the 1962 Year Book, p. 289. Application for an allowance is made to the District Authority of the regional district in which the applicant resides. There are 19 such District Authorities and their functions and responsibilities are described in the 1963-64 Year Book, p. 325.

During 1964, the War Veterans Allowance Board dealt with 3,760 recipient cases comprising appeals and referrals from District Authorities, Treasury Officers and others. The Board conceded service eligibility to 518 allied veterans who were applicants for War Veterans Allowances; 982 appeals were heard of which 531 were declined, 244 allowed and the remainder deferred or withdrawn; and eligibility to widow applicants under certain sections of the War Veterans Allowance Act was allowed in 140 cases and disallowed in 21 others. The District Authorities considered 12,000 applications, approving 8,581 and declining 3,429. To ensure continued eligibility, 91,794 recipients were either interviewed or had their financial circumstances examined. At Dec. 31, 1964, there were 83,013 recipients of War Veterans Allowances made up of 55,297 veterans, 27,430 widows and 286 orphans; 517 of the total resided outside Canada. The annual liability for all recipients was \$96,324,969.

Civilian War Allowances.—Part XI of the Civilian War Pensions and Allowances Act provides an allowance to certain groups of civilians who performed meritorious service in a theatre of actual war during World War I or World War II and to those who are in receipt of a pension under Parts I to X of the Act. Allowances are also payable to the widows and orphans of such civilians. The service requirements of these civilians are outlined in the 1963-64 Year Book, p. 326. The personal property limits and the real property limits are the same as those in the War Veterans Allowance Act. The rates of allowances and the annual income ceilings are identical to those in the War Veterans Allowance Act (see p. 338).

During 1964, the War Veterans Allowance Board dealt with 430 cases, including appeals and referrals from District Authorities, Treasury Officers and others. The Board conceded service eligibility to 277 applicants for Civilian War Allowances; 27 appeals were adjudicated of which 10 were allowed, 12 disallowed and the remainder deferred or withdrawn. The District Authorities adjudicated 439 applications, approving 268 of them and declining the remaining 171; and, in connection with continued eligibility, 1,013 recipients were reviewed in respect to their financial circumstances. At Dec. 31, 1964, there were 821 civilians, 204 widows and six orphans in receipt of Civilian War Allowances, a total of 1,031 recipients of whom five were resident outside Canada. The annual liability for all recipients was \$1,386,598.

Veterans' Bureau

The Veterans' Bureau, which is a branch of the Department of Veterans Affairs, assists former members of the Armed Forces and their dependants and former members of the various auxiliary organizations, such as merchant seamen, firefighters and others, in preparing and presenting claims to the Canadian Pension Commission; it has been in operation for 34 years. The Chief Pensions Advocate, who heads the Bureau at Ottawa, is assisted by pensions advocates, most of whom are lawyers located in the departmental district offices. The pensions advocates appear as counsel for applicants before the Appeal Boards of the Commission and, in addition, advise pensioners and applicants upon any provision of the Pension Act or phase of pension law or administration that may have a bearing on pension claims. No charge is made for the services of the Bureau.

During 1964, the Veterans' Bureau submitted 6,423 claims to the Canadian Pension Commission for adjudication, of which 33 p.c. were wholly or partially granted. These included 1,411 claims presented to Appeal Boards of the Commission. During the year, 1,208 straight entitlement claims were submitted to the Commission, based on service in World War I and peacetime, of which 161 were wholly or partially granted; claims based on service in World War II and Korea numbered 2,916, of which 943 were wholly or partially granted; and of the 888 miscellaneous claims submitted, 447 were wholly or partially granted.

Section 2.—Welfare Services

Welfare services for veterans and, where appropriate, their dependants are provided by the Welfare Services Branch. These include the administration of assigned statutes; the conducting of field work and reporting for other branches of the Department, the Canadian Pension Commission, the War Veterans Allowance Board and Services Benevolent Funds; and the provision of a rehabilitation and welfare program of advice and counselling including referral where indicated to other public or private agencies, veterans organizations, etc.

War Service Grants.—War service gratuities payable under the War Service Grants Act to veterans of World War II and the operations to restore peace in Korea are now payable only in cases where delayed application is acceptable. Re-establishment credit payable under the same Act is available up to Oct. 31, 1968. Payment of the credit, except for a balance of \$50 or less, is not made in cash to the veteran but is released on his behalf for specified purposes. Up to the end of 1964 a total of \$314,979,100 had been paid out and unused balances amounted to \$8,855,909.

2.—Re-establishment Credits Paid, by Required Purpose, 1963 and 1964

Purpose	1963	1964	Purpose	1963	1964
	\$	\$		\$	\$
Homes	208,355	151,708	Business—concluded		
Purchased under National Housing Act.....	93	1,003	Working capital.....	7,461	5,639
Purchased other than under National Housing Act.....	6,638	6,042	Tools and equipment.....	35,475	27,075
Repairs, etc.....	27,620	18,520	Miscellaneous	143,296	123,450
Furniture and equipment.....	168,364	121,983	Insurance, annuities, etc.....	32,038	33,195
Reduction of mortgage.....	5,631	4,160	Special equipment for training.....	2,367	1,304
Business	43,434	32,714	Clothing.....	72,041	59,582
Purchase of a business.....	498	—	Reimbursements.....	36,850	29,369
			Totals	395,085	307,872

Assistance Fund.—Recipients of benefits under the War Veterans Allowance Act and Part XI of the Civilian War Pensions and Allowances Act living in Canada may be granted help from this Fund provided their total income is lower than the maximum permitted by the Act. Assistance may be granted as a monthly supplement based on shelter, fuel, food, clothing, personal care and specified health costs. Single awards may also be made to meet unusual or emergency needs. Following is a summary of activities during 1963 and 1964. As monthly supplements may be continued from year to year, the number assisted in a given period is greater than the number applying.

Item	1963	1964
Persons assisted.....	No. 19,664	20,513
Persons applying during year.....	" 6,212	6,309
Applicants assisted.....	" 5,506	5,572
Fund expenditures during year.....	\$ 3,416,734	3,758,105
Proportion of expenditures given in monthly grants.....	p.c. 92	93
Persons in receipt of monthly supplements.....	No. 14,743	15,519

Education Assistance to Children.—The Children of War Dead (Education Assistance) Act provides help in the form of allowances and the payment of fees for the post-secondary education of children of those whose deaths have been attributed to military service. Assistance is restricted to children attending, in Canada, educational institutions which require secondary school graduation, matriculation or equivalent standing for admission. These include, in addition to universities and colleges, such facilities as

hospital schools of teaching and institutes of technology. From its inception in July 1953 to the end of 1964, expenditures totalled \$4,506,401, of which \$2,221,301 was spent in allowances and \$2,282,100 in fees. By the end of 1964, 3,541 children of Canada's war dead had been approved for training. Of these, 1,203 had successfully completed training—170 had obtained degrees in arts and science, 175 in education, 85 in engineering and applied science, 25 in social work, 15 in medicine, 17 in law, 76 in other university faculties, 336 in nursing, 185 in teaching and 119 in administrative and technological fields. At the same date there were 707 university undergraduates and 208 students in non-university courses receiving assistance.

Returned Soldiers Insurance.—The Returned Soldiers Insurance Act (SC 1920, c. 54 as amended) provided eligibility to contract for life insurance with the Federal Government up to a maximum of \$5,000 to any one veteran of World War I. No policies have been issued since Aug. 31, 1933. There were 48,319 policies issued during the eight years in which the Act was open amounting to \$109,299,500 and of these there were 7,087 in force with a value of \$15,158,286 on Dec. 31, 1964.

Veterans Insurance.—The Veterans Insurance Act (RSC 1952, c. 279 as amended) enabled veterans following their discharge and widows of those who died during service to contract with the Federal Government for a maximum of \$10,000 life insurance. Veterans with active service in Korea were extended eligibility to contract for this insurance by virtue of the Veterans Benefit Act 1954.

The period of eligibility to apply for this insurance will cease Oct. 31, 1968. To Dec. 31, 1964, 52,707 policies in the amount of \$171,390,000 had been issued and of these, 29,028 policies with a value of \$92,088,552 were in force.

Rehabilitation and Welfare.—Welfare officers at Departmental District Offices work closely with other branches of the Department, other public agencies at all levels and private agencies and organizations in assisting veterans and their dependants to deal with problems of social adjustment, particularly those associated with physical disabilities or the disabilities of increasing age. The latter are occurring more frequently, of course, as the age of the veteran population increases. Vocational rehabilitation is assisted through training assistance available to disability pensioners and by close collaboration of departmental welfare officers with officers of the National Employment Service and provincial rehabilitation and re-training facilities. Sheltered workshops operated at Toronto and Montreal and home assembly work in other centres produce poppies and memorial wreaths and crosses associated with Remembrance Day observances. Finished products are sold to the Dominion Command of the Royal Canadian Legion.

Section 3.—Treatment Services

Treatment Activity.—The Treatment Services Branch of the Department of Veterans Affairs provides medical, dental and prosthetic services for entitled veterans throughout Canada. Service is also provided for members of the Armed Forces, the Royal Canadian Mounted Police, and the wards of other governments or departments at the request and expense of the authorities concerned. Prosthetic services are described in detail in the 1961 Year Book, pp. 291-292.

The primary responsibility of the Branch is to provide examination and treatment to disabled pensioners for their pensionable disabilities. Other main groups of veterans receiving treatment are war veterans allowance recipients (but not their dependants), veterans whose service and need make them eligible for domiciliary care, and veterans whose service and financial circumstances render them eligible for free treatment or at a cost adjusted to their ability to pay. If a bed is available, any veteran may receive treatment in a Departmental hospital on a guarantee of payment of the cost of treatment. The pensioner receives treatment regardless of his place of residence but service to other

veterans is available in Canada only. Where Departmental facilities are not available, treatment may be received at the expense of the Department in an outside hospital by a doctor of the veteran's choice.

Under the federal-provincial hospital insurance program, DVA hospitals are recognized for the provision of insured services to veterans. Any necessary premiums may be paid on behalf of veterans in receipt of war veterans allowance. The Veterans Treatment Regulations remain the authority for the treatment of veterans (and others) in DVA institutions and elsewhere under Departmental responsibility, regardless of whether or not the hospitalization is at the expense of the insurance plan.

Medical Staff and Training Programs.—Many of the professional staffs of Departmental active treatment hospitals are employed on a part-time basis; in the main they are recommended for appointment by the Deans of Medicine of the universities with which the hospitals are affiliated. Most members of the medical staffs are engaged in teaching and private practice, and hold appointments on the medical faculties of the various universities. In the active treatment institutions, medical teaching programs are maintained, which are considered essential to attract highly qualified professional men and thus ensure the highest quality of medical care. All active treatment hospitals have been approved by the Royal College of Physicians and Surgeons of Canada for postgraduate teaching in medicine and surgery, and the majority are approved also for advanced postgraduate training in the various specialties. An extensive intern-resident program is in effect in the medical specialties as well as in other fields such as physiotherapy, occupational therapy, dietary, psychology, laboratory and medical social services. A school for the training of nursing assistants is operated at Camp Hill Hospital in Halifax. The school has an annual capacity of 70 and graduates are offered employment in other Departmental hospitals.

Medical Research.—During 1964, there were 87 projects in progress under the clinical research program. This program is varied but in the main deals with conditions affecting aging, which the Department is in a special position to investigate. Self-contained clinical investigation units have been set up in active treatment hospitals located at Montreal, Toronto, London, Winnipeg and Vancouver. (See also p. 295.)

Hospital Facilities.—Treatment is provided in 11 active treatment hospitals located at Halifax, N.S., Saint John, N.B., Quebec City, Montreal and Ste. Anne de Bellevue in Quebec, Toronto and London in Ontario, Winnipeg, Man., Calgary, Alta., and Vancouver and Victoria B.C.; also in a health and occupational centre at Ottawa, Ont., and in two domiciliary care homes located at Saskatoon, Sask., and Edmonton, Alta. The rated bed capacity of these institutions at Dec. 31, 1964 was 8,823 beds. It should also be noted that in Ottawa both acute and chronic cases that require definitive treatment are admitted to the National Defence Medical Centre. An additional 571 beds are available in veterans pavilions situated at St. John's, Nfld., Regina, Sask., and Edmonton, Alta. Pavilions are owned by the Department but are operated by the parent hospital, and medical staffs are provided by the Department.

Section 4.—Land Settlement and House Construction

The Veterans' Land Act 1942 (RSC 1952, c. 280 as amended) provides financial, technical and supervisory assistance to World War II and Korean Force veterans to enable them to engage in agriculture on a full-time or part-time basis; to acquire and operate commercial fishing establishments; to acquire, build and improve homes; and to settle on provincial, federal and Indian reserve lands.

The Act was amended in June 1965. Provision was made for substantially higher ceilings in the various categories of loans—from \$20,000 to \$40,000 for full-time farmers on economic farm units, from \$12,000 to \$18,000 for small family farmers, from \$10,800 to

\$16,000 for small-holders (part-time farmers), and from \$12,000 to \$18,000 for veterans building houses under Part II of the Act. These new loan ceilings make the assistance available under the Veterans' Land Act comparable to that provided under contemporary legislation for non-veterans, such as the Farm Credit Act and the National Housing Act. Other amendments provide for the financing of secondary enterprises—tourist facilities, farm equipment repair shops, etc.—for the small family farmer; the payment of debts "reasonably incurred"; the embodiment of the balance of previous loans in new farm loans; and authority for the Director to assist veterans in the initial financing of an establishment by the repayment of re-establishment credit or rehabilitation grants.

During 1964, over \$41,000,000 in public funds was spent on behalf of 5,372 veterans. From commencement of operations to the end of 1964 almost \$645,000,000 had been spent on repayable loans and advances and non-repayable grants. Of this amount over \$290,000,000 had been repaid, \$92,000,000 had been earned by veterans as grants, \$42,000,000 had been earmarked for grants yet to be earned, and \$213,000,000 in repayable loans was outstanding. A total of almost \$86,000,000 in interest had been received, of which \$8,500,000 was received in 1964. At Dec. 31, 1964, there were more than 51,000 accounts under administration as compared with 52,000 a year earlier.

3.—Summary of Operations under the Veterans' Land Act, as at Dec. 31, 1964

Item	Full-Time Farming	Small Holding	Commercial Fishing	Provincial Lands	Federal Lands	Indian Reserves	City-Size Lots	Total
Settlements made.....No.	30,231	55,972	1,287	4,973	553	1,665	4,117	98,798
Additional loans made..... "	10,534	4,883	37	—	—	—	—	15,454
Total loans made..... "	40,765	60,855	1,324	4,973	553	1,665	4,117	114,252
Public funds spent.....\$'000	225,798	360,350	6,042	10,908	1,191	3,734	36,635	644,658
Conditional grants earned...No.	21,392	22,697	720	3,872	253	1,326	—	50,260
\$'000	44,294	33,956	1,335	8,880	592	2,963	—	92,020
Titles released to veterans...No.	12,025	15,373	397	3,948	321	1,326	3,990	37,380
Accounts under administration..... "	14,648	33,272	724	399	172	301	100	51,073 ¹
Houses built..... "	2,274	24,928	312	1,436	127	—	4,041	33,118
Houses under construction... "	96	659	4	4	3	—	78	844

¹ Includes 1,758 civilian purchaser accounts.

Veterans who have been settled on the basis of having repayable contracts are classified under four categories: commercial farmers whose income from farming provides a good living; small family farmers whose farm incomes are supplemented by earnings from outside employment; part-time farmers, generally referred to as small-holders, whose main or sole source of income does not relate to the property; and commercial fishermen. Prior to the 1962 amendments to the Act, it was not possible to make additional loans to settled veterans other than commercial farmers. Since such loans were authorized, 828 have been made to small family farmers, of which 330 were made in 1964, and 4,705 were made to part-time farmers and commercial fishermen including 1,368 made in 1964.

The advisory, supervisory and appraisal services of the field staff are important functions of the Administration, both at the time of settlement and subsequently. These field services are provided by a staff of credit advisers, settlement officers, field officers and construction supervisors, who are highly trained in agriculture, appraisal and construction. During 1964, more than 3,800 comprehensive advisory reports were made to assist veterans

in their farming operations and over 9,300 annual reporting visits were made to discuss operations and to plan for the next year. During the year, 4,192 properties were appraised for veteran settlement.

At the end of 1964, 5,290 veterans were insured under the VLA group life insurance plan to protect the repayment of their contract. From the inception of the plan to the end of 1964, 15 insured veterans had died and a total of \$94,001 had been paid out in benefits.

Section 5.—Commonwealth War Graves Commission

The current Charters of the Commonwealth War Graves Commission consist of two documents—the Original Charter of Incorporation dated May 21, 1917 and the new Supplemental Charter dated June 8, 1964. Under these Charters the Commission is entrusted with the marking and maintenance in perpetuity of the graves of those of the British Empire and Commonwealth Armed Forces who lost their lives between Aug. 4, 1914 and Aug. 31, 1921 and between Sept. 3, 1939 and Dec. 31, 1947 and with the erection of memorials to commemorate those with no known grave.

The Canadian High Commissioner in London, England, is the official Commission member for Canada, the Minister of Veterans Affairs is the Agent of the Commission in Canada, and the office of the Secretary-General of the Canadian Agency is in the Veterans Affairs Building, Ottawa.

CHAPTER VII.—EDUCATION

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

PART I.—FORMAL EDUCATION*

Section 1.—The Current Education Situation

With the exception of the Second World War years, the proportion of the gross national product used for education has increased steadily over the past quarter-century, rising from 2.6 p.c. in the late 1920's to level off somewhere between 5 p.c. and 6 p.c. in the mid-1960's. This increase in expenditures on education reflects such changes as larger though fewer schools at the elementary-secondary level, the rapid increase in the number of trade and technical institutes, the increase in the number of colleges and universities, and the rapid expansion of most campuses; it also reflects rising salaries for teachers, a trend that has levelled off at the elementary-secondary level but continues in higher education. In fact, this growth relates to educators and the general public becoming aware of the changes in technology and science, the rapid population increase, urbanization, greater longevity and more leisure, and other changes now having a considerable effect on society.

Acknowledgment of the simple convention that each person ought to have as much schooling as his talents justify is stimulating change throughout education—in the expansion of kindergartens, the provision of special services for atypical pupils, expansion of trade and technical education facilities, interest in dropouts, greater variety in post-secondary schools, courses and retraining, as well as expansion of both the undergraduate and graduate university levels. The concept is often related to ideas of national progress, even to national survival, and has been generally accepted at a time when business, industry and government are all demanding more highly skilled workers and professionals.

Academic and vocational education and training account for about 2.3 p.c. of the net annual expenditure of the Federal Government, 27.8 p.c. of provincial expenditure and 30.4 p.c. of municipal expenditure. This outlay has, in part, increased public interest in education, although economists have stimulated interest in the economic aspects of education

* Prepared in the Education Division, Dominion Bureau of Statistics.

related to production and manpower. At the same time, greater concern about resources throughout industry has resulted in more interest in faculties graduating scientists and engineers.

Education facilities are expanding at all levels. At the higher education level, enrolment of full-time university students in 1963-64 was 158,388, a figure 12 p.c. above that of the previous year; in addition, part-time students numbered some 57,000. The numbers being graduated each year with first degrees has advanced in proportion to enrolments and those with second and third degrees are increasing even more rapidly. New institutions of higher education are being established in all provinces or present institutions are expanding, or both. Commissions in British Columbia and New Brunswick resulted in the establishment of new institutions in the former and a reorganization in the latter. Quebec's Royal Commission is considering the best organization of institutions to meet the needs of the province and has recommended the establishment of post-secondary institutes. In Ontario, a committee of the presidents of the universities considered the situation and, following their recommendations, the provincial government established a Department of University Affairs under the Minister of Education. Similar interesting developments and expansions are going on in the other provinces, whether to provide for junior colleges, to provide special faculties or institutes, or to place emphasis on graduate faculties. The 'trimester' system is being adopted by the new Simon Fraser University in British Columbia and Waterloo University in Ontario plans to expand its two-shift, work-study program into appropriate fields other than engineering.

At the elementary-secondary level, there is considerable activity in the field of curriculum and class organization. For example, Quebec has proposed a six-year elementary course in which pupils progress chronologically but with streaming, except that some pupils may include a remedial year at year four and finish after seven rather than six years. Saskatchewan also is in the act of revamping its curriculum into a 3-3-3-3 plan providing for three streams in each unit continuing throughout with no failures. Ontario supports a Curriculum Institute and the other provinces are seeking more efficient methods of instruction and revising content; innovations include the Initial Teaching Alphabet, the Cuisinaire method and the new mathematics.

That the education level of the Canadian population is rising is shown by the census figures of numbers of persons in school and percentages of the total population in school. The population aged 5-14 increased by 55.6 p.c. from 1951 to 1961 but the percentage at school rose by 71.7 p.c.; similarly, the population increase for ages 15-24 was 21.9 p.c. compared with an increase in school attendance of 94.1 p.c. The relative percentage increase for ages 15-24 varied among the provinces from 42.5 in Saskatchewan to 125.0 in Quebec and 279.4 in the Yukon and Northwest Territories. Since over 95 p.c. of pupils remain in school until the end of compulsory schooling, large increases can be expected only if those 16 years of age or over stay in school longer. It is interesting to discover that the situation is improving and to note the number of persons 20-34 years of age who were enrolled in school in 1961:—

Age Group	Persons in School	Level at which Enrolled		
		University	Secondary	Elementary
	p.c.	p.c.	p.c.	p.c.
20-24 years.....	8.0	61.2	34.6	4.2
25-29 ".....	1.8	56.5	31.7	11.8
30-34 ".....	1.0	40.0	40.0	20.0

From age 35 on, less than 1 p.c. of the population were at school but, of a total of 1,391,134 persons aged 65 or over, 3,685 reported that they had enrolled in school classes during the census year. This did not refer to occasional attendance, attendance at meetings, etc.; the DBS report *Participants in Further Education in Canada* states that about one adult in 25, or some 426,340 persons, took courses or attended series of meetings during the

year 1959-60. Of these, about 42 p.c. took vocational courses and 14 p.c. took academic courses leading to a high school certificate or university degree. The remainder were enrolled in general or cultural subjects.

In the participation survey, about 60 p.c. of those reporting were males; the median age was 31 years. It was also found, as with other somewhat similar studies, that those who seem to need additional education most are the least likely to enrol. More than 80 p.c. of the persons enrolled reported secondary or university education and about 40 p.c. of those with at least some university participated in further education.

According to the 1961 Census, of those aged 20-29 at school, about 70 p.c. were men and 30 p.c. women; for succeeding age groups the percentage of women increased. About 1.6 p.c. of Canadian adults reported no schooling and most of these lived in rural non-farm areas. A large proportion of those whose education ended in the elementary grades lived on farms. At the other end of the schooling hierarchy, about 3.0 p.c. of adults possessed university degrees and another 3.1 p.c. had some university education. As might be expected, almost 90 p.c. with degrees were found in urban centres. About 80 p.c. with some university education lived in urban centres where about 70 p.c. of the adult population was found.

It is safe to assert that more Canadians are staying in school longer, decade by decade, and that the proportion completing secondary education has reached the point where decisions will have to be made to determine whether or not those who wish further education will find junior or community colleges, other post-secondary schools or university places available. At present, the demand for university and technical school graduates exceeds the supply and competition for the graduates by the university itself, by government and by industry is growing, particularly for graduates in engineering and science.

Section 2.—Administration and Organization of Education

In establishing the legal framework for Confederation under the British North America Act, the provinces retained responsibility for formal education within their borders. Thus Canada has ten provincial education systems and, although they have much in common, each is unique in some ways. Most divergent are Quebec, which has in reality two systems under the same provincial government department—the one essentially French-speaking and Roman Catholic, the other English-speaking and Protestant; and Newfoundland, which has a denominational organization under a single department. In addition, Yukon Territory has its own system patterned largely on British Columbia and the schools of the Northwest Territories are administered from Ottawa by the Federal Government.

Each province has established a Department of Education with a Cabinet Minister at its head. Under him is a Deputy Minister who is a civil servant and in charge of the staff of division heads for such areas as elementary, secondary, vocational and adult education, and heads or supervisors of teacher education, curriculum, audio-visual education, etc. These, with the registrar, accountant, subject supervisors, etc., assisted by their staffs, carry on the work of the department. The inspectors or superintendents maintain liaison between the department and the school boards and teachers. In each province the school law or laws, together with the regulations issued by the Departments of Education form the legal basis for school organization and administration.

As already mentioned, each province has unique and outstanding features too numerous to mention here. The systems may be of 12 or 13 years and the organization may be a 3-3-3-3, 3-4-5 or 6 or follow some other scheme. Larger units may have been introduced and transportation provided or the unit may still be the rural school district in the farm area. Teacher education may be all conducted on university campuses, with teachers being enrolled toward a degree, or teachers' colleges may be quite separate from the university and the course provided generally of one year's duration.

All provinces are now providing trade schools and institutes of technology, which may be found under one roof or in separate buildings. It seems likely that, with more youth staying longer in school, provision will be made for more terminal courses for those students who do not wish to continue to university or who cannot meet entrance requirements. Some provinces have legislation providing for the establishment of junior or community colleges, which may perform at least three functions: to act as selective feeder colleges for the universities; to provide technical and other terminal courses; and to provide a wide variety of courses for the out-of-school population who are interested in being upgraded, following cultural pursuits or taking other courses.

Elementary and Secondary Education

Within the framework of each provincial jurisdiction, public, elementary and secondary education is administered by local education authorities operating under a Schools Act. These school boards or boards of education are responsible for establishing and maintaining schools, employing teachers, providing necessary transportation for pupils, and budgeting for the money required to build and operate the schools. Operating costs are met from local taxation supplemented by provincial grants. Building costs may be financed from current income but more commonly through debentures. School board members may be all elected, all appointed, or some elected and some appointed. The number of members varies from three in most of the small rural districts to five, seven, or even twelve or more for urban centres.

Traditionally, rural municipalities were divided into small school districts or sections of 16 or more square miles. In almost all provinces these have been or are being replaced by larger units of administration in order to provide better school facilities, improved administration and greater equalization of costs.

The public school system normally provides 12 or 13 years or grades depending on the province. Patterns for elementary and secondary levels are 6-2-3, 6-2-5, 6-3-2, 6-4-2 and 7-3-3 but the 6-3-3 pattern is the most commonly followed. The generally accepted entrance age to regular classes is six years, although the number of public and private kindergarten classes is increasing markedly.

In several provinces, Roman Catholic or Protestant minorities may organize separate schools within the public school system and in all provinces religious groups, private organizations and individuals may establish private elementary and secondary schools. Many of these schools, which are small in number except in Quebec, tend to place considerable emphasis on character-building and cultural subjects; nevertheless, in general, they follow the provincial curriculum fairly closely and prepare students for university or for entrance into the business world. Private schools in Quebec, most of which are operated by various orders of the Roman Catholic Church, are more numerous than in the other provinces.

In all provinces, increasing provision is being made for children in need of special programs, particularly in the cities where larger numbers warrant such attention. There are in Canada six schools for the blind and 13 for the deaf and in a number of centres classes for the hard-of-hearing and for those with poor vision. Special classes are also provided in most larger centres for other physically handicapped children, hospitalized and homebound children, educable and trainable retardates, and the emotionally disturbed. In addition, a limited number of classes are conducted for mentally gifted children. In most larger urban centres bright pupils are grouped into separate classes where they may advance more rapidly or be provided with an enriched program of studies; slow learners are also grouped in order that they may be given special attention suitable to their abilities.

As might be expected there is considerable variety in curriculum from province to province and, although there is some interest in the possibility of a uniform program of study across Canada, such changes as are made tend to make the curricula more varied and more applicable to the individual needs of the students.

Parent-teacher and home and school organizations are numerous and active across Canada, working toward better schooling and giving community leadership in many areas connected with child instruction and welfare.

The divergent systems of Newfoundland, Quebec and the Territories are discussed separately below.

Newfoundland.—The topographical and economic influence of the Island influenced the development of education as did pockets of settlers establishing themselves in outposts which were relatively self-sufficient. Active leadership of the churches and homogeneity of the village populations provided a minimum of overlapping of denominations except in a few industrial areas or the larger cities. A Royal Commission is considering the efficiency of the present organization with a view to increasing the education level of the Island's population.

The present system is predominantly denominational although there are amalgamated and community schools operated by the Department of Education. The schools are administered on a local basis by the five largest denominational groups—Roman Catholic, Anglican, United Church, Salvation Army and Pentecostal Mission. These operate under five superintendents, each in charge of the schools of his faith, and a member of the Department. Local boards, including the local clergymen as members, select teachers, pay salaries from government grants and look after the school property. All schools follow the provincial course of study and examinations, scholarships and diplomas are determined by an interdenominational body representing the major denominations and the Department.

Quebec.—Quebec's education system operates on a unique working compromise which was reached after nearly a century of struggle on the part of two cultures, both of which recognized education as fundamental to their way of life. Two distinct publicly administered systems operate under a common Act of the Legislature. About seven eighths of the population is Roman Catholic and the remainder forms the non-Roman Catholic, predominantly Protestant, system. Organization of the non-Roman Catholic schools is similar to that in the other provinces, whereas the Roman Catholic system is patterned somewhat after the French education system and is unique in Canada. The difference in religion is accentuated by the difference in language—teaching in most Roman Catholic schools is carried out in French and in the Protestant schools, with perhaps one or two exceptions, in English. Private schools are financed and administered by private organizations and comprise schools for infants, elementary and secondary schools, classical colleges, commercial schools and institutions giving courses at university level. Public schools are maintained through local taxes supplemented by provincial subsidies and are administered by school commissions whose members are elected in accordance with the Education Act; they are free and accessible to all children of school age.

Up to and including grade 7 in the Roman Catholic public schools, classes consist of pre-school and elementary courses; and about 1 p.c. of these are for exceptional children (retarded, slow-learning and high-ability accelerated pupils), a program growing in importance. The secondary program in grades 8 to 11 includes general, scientific, classical, special and college-preparatory divisions. In addition, there are occupational courses in grades 8 and 9, and secondary vocational programs in grades 8 to 11 covering commercial, industrial, agricultural, home economics and family institute courses, with provision for a grade 12 in the commercial section. For pre-university students there is a grade 12 which corresponds to the first year of university or fifth year of the *collège classique* which many students enter after completing year 7 and continue for eight years of further study to earn the *Baccalauréat*. The English-language Roman Catholic schools follow similar programs in elementary and secondary education. The Protestant public schools provide a seven-year elementary and four-year secondary course leading to the High School Leaving Certificate, which gives access to university. Some Protestant secondary schools provide a grade 12, from which graduates may proceed to second year university.

In Quebec, education has recently been undergoing rapid change and the trend is to provide an organization more closely resembling that in the other provinces in which there is a unified governmental authority at the provincial level. Following the recommendations of the Royal Commission of Inquiry on Education (constituted early in 1961 and issuing the first volume of its report early in 1964), the Quebec Legislature in the Spring of 1964 passed "Bill 60" providing for the creation of a new administrative structure for Quebec's education system. The Department of Youth and the Department of Public Instruction were replaced by a Department of Education. The former Minister of Youth was appointed Minister of Education and the former head of the Planning Bureau in the Department of Youth was named Deputy Minister. The latter is assisted by two Associate Deputy Ministers—one for the Roman Catholic sector and the other for the Protestant sector. Also abolished by the new Act is the Council of Public Instruction (and its Catholic and Protestant Committees of 44 and 22 members, respectively), which long constituted the real authority over the separately administered Catholic and Protestant public school systems. In its stead, as a purely consultative body in education policy-making, a representative body entitled the Superior Council of Education was set up as of July 1964; its purpose is to provide a channel of communication between the public and the Ministry and assist in keeping the education system in constant contact with the evolution of society.

"Operation 55", a three-year plan to organize the Province of Quebec into 55 school regions to provide academic and vocational education, was launched on Sept. 10, 1964. The mapping of the regions was followed by the creation of regional planning committees and by the installation of regional school boards.

The Yukon and Northwest Territories.—In the Yukon Territory, the school system is operated by the Territorial Government through a superintendent and staff at Whitehorse responsible to the Commissioner of the Territory who, in turn, receives instructions from the Minister of Northern Affairs and National Resources in Ottawa. The Education Division of the Northern Administration Branch of the Department of Northern Affairs and National Resources offers advice on education policy to the Minister and Territorial authorities. All schools, both public and separate, with the exception of the Carcross Indian Residential School (operated by the Indian Affairs Branch of the federal Department of Citizenship and Immigration in co-operation with the Territorial Government) and St. Mary's School (a quasi-private school operated by the Roman Catholic Church in Dawson) come under the direct ownership and operation of the Government of the Yukon Territory. Although there is provision for three types of schools in the Yukon—public, separate and Indian—most of the Indian children attend either the public or the separate schools. In 1961, the population was 16,000 of whom 2,200 were Indians. By choice, the schools of the Yukon follow the British Columbia education curricula.

In the Northwest Territories (the Districts of Mackenzie, Franklin and Keewatin) the school system is operated by the Education Division of the Northern Administration Branch of the Department of Northern Affairs and National Resources by agreement with the Government of the Northwest Territories. The Federal Government, as the operating agency, finances school operation and receives from the Territorial Government the pupil cost for pupils who are neither Indian nor Eskimo. Enrolment for the 1964-65 term included 2,639 Eskimos, 1,319 Indians and 2,749 others, a total of 6,707 in the Northwest Territories and Arctic Quebec combined. Yellowknife public and separate school districts and Hay River separate school district are financed partly by local taxation and partly through grants-in-aid from the Federal and Northwest Territorial Governments. Inspection and supervisory services are provided by the Education Division. Alberta education curricula, subject to increasing modifications, are prescribed for the schools of the North-

west Territories. Expansion is taking place in school accommodation and basic elementary and secondary education is being provided for all children in the Territories and for Eskimo children in northern Quebec, as well as vocational training for them and for young adults showing interest and special aptitude. The program, which is an integrated one for the children of all races in the North, provides for the construction of schools and student residences, curricula designed for a northern environment, bursaries and other student aids, and special vocational training projects appropriate to both local craftsmanship and mechanical trades in such fields as construction, transportation and mining.

Higher Education

Canada not only is a bilingual country but also has two cultural traditions. As a consequence, two somewhat different systems of higher education have developed. One, originally patterned on the French system before the secularization of higher education in France, with the majority of the institutions under control of Roman Catholic orders or groups, has in recent years adapted more and more to such North American higher education traditions as may be considered to exist while still retaining French characteristics. The other system was originally designed more according to English, Scottish and United States practices, instruction being given in English and the institutions controlled by a variety of groups—religious denominations, governments and private non-denominational bodies. Institutions comprising a third small group and giving instruction to both English-speaking and French-speaking students are operated or controlled mainly by Catholic groups. The first such bilingual institution to be established, the University of Ottawa, developed from a Catholic college opened in Ottawa in 1848. In 1965, the University of Ottawa, still bilingual, was reorganized under a non-denominational board of governors.

Large universities, with numerous faculties and provision for graduate study in many fields, are comparatively recent phenomena. Until the middle of the nineteenth century, higher education in Canada included little more than arts and theological training. From that time, more instruction in science and certain professional fields was gradually introduced. Graduate studies, to judge by the number of earned doctorates, did not acquire importance until after 1920. Only for the past 20 years or so have more than 100 earned doctorates been granted annually.

Women today comprise about 27 p.c. of full-time university enrolment; the first women students were enrolled around 1870-80 and by 1920 they accounted for 15 p.c. of the total enrolment. Most universities are co-educational, although there are numerous private Roman Catholic arts colleges for men or for women.

As there is no federal ministry of education, national planning for higher education has been hampered. Each province makes plans for the future of higher education within its own boundaries although the Federal Government does contribute to higher education costs. In addition, various national organizations attempt to study and influence certain aspects of higher education at the national level. An example of the latter is the announcement in 1963 by the Canadian Universities Foundation* of a commission to study the financing of higher education in Canada, with particular reference to the decade ending in 1975. The Commission released its report in October 1965. The study was financed by a \$100,000 Ford Foundation grant and approximately the same contribution from Canadian business and industry.

Civil legislation regarding the establishment of new institutions, or changes in existing ones, is usually enacted by provincial legislatures, except for federal military colleges and a few institutions originally established by Act of the Canadian Parliament. Once an

*On Aug. 1, 1965, the Canadian Universities Foundation became the Association of Universities and Colleges of Canada.

institution is legally chartered, control is vested in its governing body, the membership of which is indicated in the charter. The chain of authority runs from the board of governors through the president (or *recteur*) to the senate and deans to the faculty as a whole. The composition of the board of governors varies according to the type of institution. Provincial universities normally have government representation; church-related institutions have clergymen. Nearly all boards have either direct representation from the business community, other organizations and representation of alumni, or are advised by these groups through advisory boards or committees. The size of the board varies from a very few to over forty. It has ultimate control of the university and normally reserves to itself complete financial powers including the appointment of the president and most other staff. On occasion there will be faculty representation on the board, and recently there have been attempts on the part of faculty groups of many institutions to obtain greater representation on the boards of governors. The senate usually has academic matters delegated to it by the board. It is responsible for admission, courses, discipline and the awarding of degrees, and is composed mainly of faculty, although there may be alumni and representatives of non-academic groups.

Although there are variations, most students enter a university or the *cours collégial* of a college *classique* after the completion of from 11 to 13 years of elementary and secondary schooling. In from three to five years, courses of instruction lead to a bachelor's degree in arts, pure science and such professional fields as engineering, business administration, agriculture and education. Courses in law, theology, dentistry, medicine and some other fields are longer—usually requiring for admission completion of part or all of a first-degree course in arts or science. For those pursuing graduate studies and research, the second degree is normally the master's or *licence*—at least one year beyond the first degree—and the third is the doctorate, normally requiring at least two additional years beyond the second degree.

Most universities state their requirements for admission to first-degree courses in terms of the certificates of completion of secondary schooling issued by the department of education of the province in which they are located. As a general rule, they accept equivalent certificates from other provinces and countries as qualification for entrance. Universities in Newfoundland, Prince Edward Island, Nova Scotia, New Brunswick, Quebec, Ontario (in a few cases) and British Columbia admit students at the junior matriculation level, after 11 or 12 years of schooling. Those in the other provinces admit only at the senior matriculation level, which is one year more advanced.

Trade and Technical Education and Training

Increasing use of automated processes in business and industry is resulting in a shrinking market for unskilled and semi-skilled workers. Early school dropouts are finding it increasingly difficult to find suitable employment and many are now trying to acquire in their adult years the general education or training in the skilled trades that they missed in their youth. Those persons still in the regular school system are tending to remain longer and go farther in the system, partly because of the changing attitudes of society toward education and partly for economic reasons.

Hand in hand with this growing demand for better educational facilities, educators are striving to provide comprehensive programs at all levels to meet the needs not only of the university-bound but also of the great majority who require adequate preparation for early entry into the labour force. It is now accepted that vocational education for adults as well as for youths is a public responsibility which must be provided, as needed, throughout man's working life. Education of this nature is of national concern and has a direct impact upon material prosperity, the national economy and the standard of living.

The pattern of vocational education in Canada varies from province to province and there are variations within the provinces. However, there are three basic types of institute offering vocational education—secondary schools, trade schools and post-secondary institutes of technology. Many municipal school boards provide vocational courses as part of the regular secondary school program in technical or composite-type schools. Students in these schools get some general vocational training or training in certain specific fields, such as typing or auto-mechanics, along with instruction in general academic or cultural subjects.

Trade schools, on the other hand, are open only to those who have passed the provincial school-leaving age and have left the regular school system. These schools offer specialized training and their purpose is to develop competent tradesmen. Courses at the trade level do not usually require high school graduation; the grade level demanded, which varies according to province or trade, ranges from grade 8 to grade 12.

The third type, the institutes of technology, operate at a higher level of training. Enrolment in the institutes presupposes high school graduation or at least high school standing in such relevant subjects as mathematics and the sciences. Graduates from institutes of technology are awarded diplomas of applied arts or diplomas of technology and form an essential link between professional engineers or administrators on the one hand and qualified craftsmen on the other. Most of the institutes of technology and trade schools across Canada are provincially operated.

In addition to the vocational education and training provided by these three types of publicly operated schools, many private business colleges and trade schools offer a wide variety of business, trade and technical courses, some through correspondence. Vocational education is also carried out under a system of apprenticeship training. Such training is given mainly on the job, with classes taken at the trade schools either during the evening or on a full-time basis during the day for periods ranging from three to 10 weeks a year.

Recognizing the importance of a high level of occupational and technical competence in the economic development of the country, the Federal Government through the Technical and Vocational Training Branch of the Department of Labour assists the provinces in the development of programs of technical education at different levels—for youth preparing to enter the labour market, for trade and other occupational training and re-training of adults (pre-employment and up-grading courses), and for advanced technical training. To this end, the Technical and Vocational Training Assistance Act was passed by the Federal Government in 1960 to provide financial assistance to the provinces for vocational training. The following specific measures were agreed upon by the federal and provincial governments: (1) a capital assistance program; (2) nine other programs covering technical and vocational high school training, technician training, trade and other occupational training, training in co-operation with industry, training of the unemployed, training of the disabled, training of technical and vocational teachers, training for federal departments and agencies, and student aid; and (3) an Apprenticeship Training Agreement.

The need for further research into the whole field of manpower needs prompted the later addition of a tenth program to the nine mentioned under (2) above. This program—manpower requirements and manpower training research—is designed to stimulate and encourage research projects undertaken in the provinces for providing information relating to technical and vocational training and manpower requirements, including the improvement of training programs and methods and the determination of manpower requirements. The federal contribution is 50 p.c. of provincial expenditures.

The capital assistance program, under which the Federal Government pays 75 p.c. of the provincial expenditure up to a specified total for each province, has given a tremen-

dous impetus to the development of training facilities. During the period Apr. 1, 1961 to Mar. 31, 1965, projects valued at over \$801,000,000 were approved, which, when all completed, will provide a total of 251,451 new places for students, most of whom will be enrolled in two- or three-year courses. These included the construction of 353 new high schools with facilities for vocational training plus major additions to 87 such schools; construction of 60 new trade schools and enlargement of 85 existing trade schools; and construction of 17 new technical institutes plus major additions to 21 existing institutes. In addition, 114 minor projects were undertaken involving extension to existing schools. The additional facilities are summarized by province as follows:—

<i>Province or Territory</i>	<i>New Schools</i>	<i>Major Projects Involving Additions to Existing Schools</i>	<i>Minor Projects Involving Additions to Existing Schools</i>	<i>New Student Places</i>
	No.	No.	No.	No.
Newfoundland.....	13	1	1	3,570
Prince Edward Island.....	2	—	6	1,380
Nova Scotia.....	7	8	1	2,838
New Brunswick.....	6	3	27	2,645
Quebec.....	96	67	7	55,573
Ontario.....	241	70	22	140,458
Manitoba.....	1	14	42	2,440
Saskatchewan.....	5	5	—	3,804
Alberta.....	38	14	4	25,975
British Columbia.....	20	10	3	12,594
Yukon Territory.....	1	—	1	144
Northwest Territories.....	—	1	—	30
TOTALS.....	430	193	114	251,451

In addition to assisting financially with the provision of physical facilities for training, the Federal Government shares in the operating costs of the various programs conducted under the Technical and Vocational Training Agreements, including the Apprenticeship Training Agreement. These programs are closely correlated with the common objectives of training the country's labour force at all levels below university and in all fields.

Of particular concern is the need to up-grade both the educational and vocational competence levels of those already in the labour force. The Federal Government undertakes to share the expenditures made by employers in developing and operating approved training programs for their employees, particularly basic training for skill development, re-training of technologically displaced persons, and apprenticeship training; higher level and other training projects are also encouraged. A Manpower Consultative Service has been established to assist industry with problems encountered in the fields of manpower training and employment and to take part in the manpower research program.

A limited survey of organized training programs for apprentices, technicians, first-line supervisors and skilled tradesmen in such fields as manufacturing, transportation and communications, mining, quarrying and oil wells, and public utilities was conducted by the Dominion Bureau of Statistics in 1963 in co-operation with the Economics and Research Branch of the Department of Labour. Results revealed that almost 17 p.c. of the establishments surveyed conducted some organized training programs, with an incidence of 8 p.c. for establishments employing from 15 to 50 persons and 25 p.c. for those with 50 or more employees. In addition to the establishments that reported some form of organized program for their staffs, many others indicated that they gave tangible encouragement to individual employees by contributing to the payment of fees for courses or by other means.

Correspondence Courses

During 1963-64, approximately 130,000 children and adults in Canada were taking some type of correspondence course. Correspondence courses were used mainly by children in remote areas living far from a school, by ill or disabled children unable to attend school, by employed adults preferring correspondence courses to night school study, and by inmates of correctional institutions.

Academic correspondence courses at the elementary and secondary level were provided by the Department of Veterans Affairs (which offers courses to veterans, members of the Armed Forces, civil servants and inmates of federal penitentiaries) and by the provincial departments of education. During 1963-64, about 40,000 adults were taking correspondence courses from these two sources. In addition, 11,259 children were taking a complete grade by correspondence and 13,592 others were attending day school classes and taking some of their courses by correspondence.

Vocational correspondence courses are provided by the Department of Veterans Affairs, the provincial departments of education and private trade and business schools. During 1963-64, 14,124 Canadians registered for vocational correspondence courses with the provincial departments of education and the Department of Veterans Affairs, and 30,312 took courses offered by private trade or business schools.

At the university level, 6,703 students were registered for correspondence courses giving credit toward a degree or diploma, and 13,009 were taking non-credit courses of a social, cultural or professional interest.

Federal Contributions to Education

Some 24 Federal Government departments or agencies contribute in one way or another to education. Interest in education in the provinces by the Federal Government stems from its realization of the contribution of schooling to production, services and trade, and the benefits from research. The chief contributions are therefore sums or grants to assist the provincial departments with their vocational programs and grants to the universities. The University Grants Program is administered by the Canadian Universities Foundation* with amounts based on a rate of \$2 per head of population, the provincial portions being allocated to the universities according to their full-time enrolment. The student loans program is operated under the Canada Student Loans Act (SC 1964, c. 24), assented to July 28, 1964, when \$40,000,000 was set aside to enable full-time students to borrow up to \$1,000 annually, interest-free for five years—the \$5,000 or less to be repaid with interest commencing six months after the student has graduated. The loan scheme is operated by the chartered banks with the students being approved for loans by the universities and institutes of technology. The Federal Government guarantees the loans and pays the interest while the student is attending college. The amount allocated will be increased year by year in proportion to the increase in the number of persons 18-24 years of age.

Under the Technical and Vocational Assistance Act (SC 1960-61, c. 6), the Federal Government, until 1975, contributes 75 p.c. of the total spent by a province on buildings and equipment for approved projects as determined under the agreements between the federal and provincial governments which cover some ten programs. These programs cover high school vocational classes, trade schools, institutes of technology, organized training on-the-job, apprenticeship, rehabilitation, management education, etc., (see also p. 353). As already mentioned, (p. 354), the capital expenditure for vocational training in the provinces during the period Apr. 1, 1961 to Mar. 31, 1965 totalled over \$801,000,000; of this amount, over \$471,000,000 came from the federal coffers.

The Federal Government through the Canada Council in 1957 provided an amount of \$100,000,000, half of which was to be distributed among the universities for specified building and equipment purposes, similar to the distribution of grants. Interest from the remaining \$50,000,000 was to be used to assist in the development of the arts, humanities and social sciences mainly through scholarships (see p. 382).

* On Aug. 1, 1965 the Canadian Universities Foundation became the Association of Universities and Colleges of Canada.

Other contributions are more indirect and include scholarships, research grants and reports or services of value to the school. Research grants are made by the National Research Council, the Defence Research Board, the Department of National Health and Welfare, the Department of Labour and other agencies. Some Departments such as Agriculture, Health and Welfare, etc., provide materials and publications of value in the school programs and the National Museum, the National Gallery, the National Film Board and the Canadian Broadcasting Corporation contribute directly or indirectly to various school programs (see pp. 373-382).

More directly, the Federal Government is responsible for the education of the Eskimos, Indians and white persons in the Territories (see p. 350), the Indians on the reserves, prisoners in penitentiaries, members of the Armed Services and their dependants and in-service training for permanent personnel. It also assists in citizenship training and other out-of-school informal education activities.

External Aid.*—Some six thousand university students, the majority in the graduate schools, come to Canada each year from some 150 countries although the largest number are from the United States. The number has been steadily increasing year by year at about the same rate as Canadian university enrolment growth and annually represents about 6 p.c. of the total. The number of such students is about the same as the number of Canadians studying abroad of whom, again, the majority are graduate students.

Canada's External Aid Office is responsible for the operation and administration of external assistance programs, including educational assistance to Commonwealth and other countries. Since 1960, such assistance consisted of provision of 261 teachers including teacher college personnel, 61 university staff members sent out individually or in teams, and 119 technical advisers in vocational education, health and welfare, government administration and other areas as well as the provision of such services as television facilities, film units, farm forums and radio broadcasts. Some 4,500 persons under the UN agencies and Commonwealth scholars have been trained in Canada since 1950 and the number trained annually has more than doubled during the period. It is hoped that those trained will return to develop training facilities within their own countries.

From 1960 to 1964 Canada's expenditures on capital projects abroad amounted to about \$1,280,000 and some \$4,000,000 was earmarked for such projects for the two years following. Major projects include Canada Hall, a residence for the University of the West Indies in Trinidad; technical equipment to schools in Malaysia and Tanganyika; and audio-visual equipment, handicraft supplies and other teaching aids to various countries.

In 1964, under the Commonwealth Scholarship and Fellowship Plan which began in 1960, some 234 Commonwealth students were brought to Canada (see also p. 173).

Canada has a number of voluntary agencies interested in aiding students from other countries, several of which receive some assistance from the Federal Government. Among these are the Canadian University Service Overseas, the African Students Foundation, and the World University Service of Canada.

Section 3.—Statistics of Schools, Universities and Colleges

Elementary and secondary schools may be classified as either publicly controlled or private. The publicly controlled schools include: the public and separate schools under local school boards—by far the most numerous group; provincial schools which at this level are limited mainly to trade schools, correspondence courses, and special schools for

* See also pp. 171-174.

the blind and deaf; and federal schools for Indians, for children in the Northwest Territories, and for the children of members of the Armed Forces overseas. Private schools may be academic, business (commercial), trade, technical, correspondence or even a combination of these.

Institutions of higher education may be provincial, church, independent universities and colleges, or federal military colleges. In addition there are institutes of technology, teachers' colleges, theological institutions and schools for such specialized fields as nursing, agriculture, paper-making, fisheries, graphic and fine arts, languages, etc. Some of these are provincial and some private.

Continuing or adult education takes a variety of forms and reaches all levels from the basic English courses provided for newly arrived immigrants to courses of university level, and from formal courses to popular lectures and musical and theatrical performances. Most organized classes for adults operate under the auspices of universities, colleges, local school boards, churches or community organizations.

Table 1 shows full-time enrolment at all levels each year for the period 1955-56 to 1964-65 and Table 2 shows the number of schools, teachers and pupils for all types of education institutions, classified by province, for the school year 1963-64. In all types of schools the number of pupils has been increasing. The increase was first noticed at the elementary level some six years after the birth rate began to rise during the war years. About eight years later the children born during the War were entering high school and four years later they began entering university. The number of teachers is rather closely related to the number of students although the trend is toward larger classes. On the other hand, the number of schools has remained fairly constant, the increase caused by the construction of new and larger schools in urban areas being counterbalanced by the closing of many one-room rural schools.

1.—Full-Time Enrolment in Elementary and Secondary Schools, and in Universities and Colleges, School Years 1955-56 to 1964-65

School Year	Elementary and Secondary Schools ¹			Universities and Colleges
	Elementary Grades ²	Secondary Grades	Total	
	No.	No.	No.	No.
1955-56.....	2,726,762	608,683	3,335,445	72,737
1956-57.....	2,842,501	653,938	3,496,439	78,504
1957-58.....	2,959,467	646,360	3,605,827	86,754
1958-59.....	3,084,346	748,098	3,832,444	94,994
1959-60.....	3,208,269	802,690	4,010,959	101,934
1960-61.....	3,319,450	882,247	4,201,697	113,864
1961-62.....	3,404,654	1,002,723	4,407,377	128,894
1962-63.....	3,490,093	1,099,394	4,589,487	141,388
1963-64.....	3,595,631 ³	1,185,906 ³	4,781,537 ³	158,388
1964-65 ^p	3,700,070	1,263,725	4,963,795	178,238

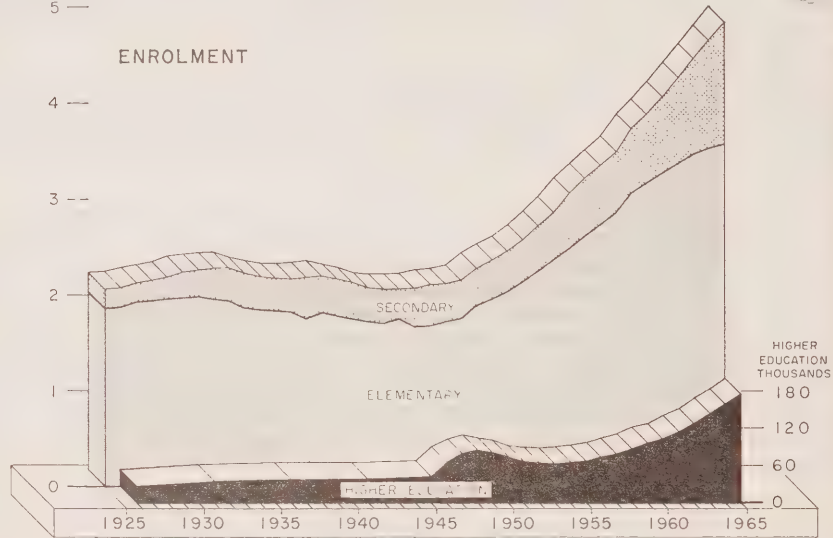
¹ Includes publicly controlled, private and federal schools.
² grade 8 in all provinces except Quebec; grade 8 included with secondary grades in Quebec.
³ Includes preliminary figures for Quebec.

² From kindergarten to and including

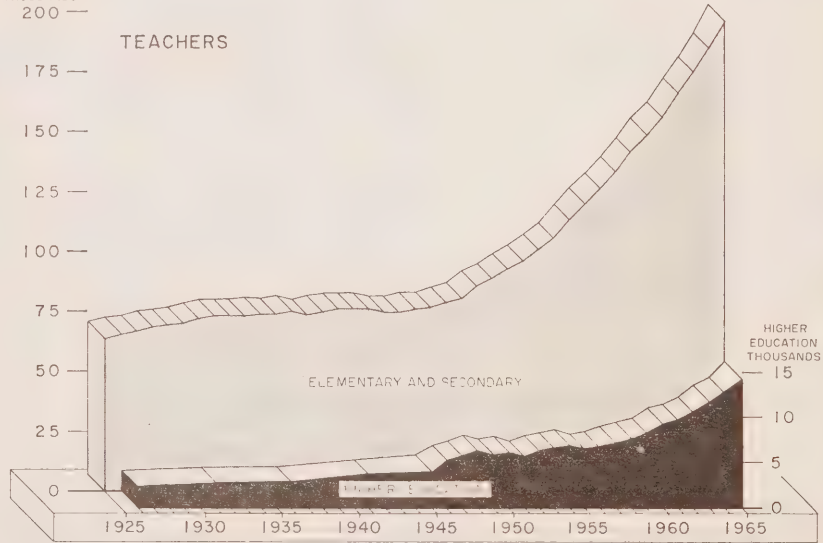
³ Includes pre-

FULL-TIME ENROLMENT AND TEACHERS IN PROVINCIAL
PUBLIC SCHOOLS AND IN COLLEGES, 1925 - 65

ELEMENTARY &
SECONDARY
MILLIONS
5 —



ELEMENTARY &
SECONDARY
THOUSANDS
200 —



**2.—Schools, Teachers and Enrolment for All Types of Education Institutions,
by Province, School Year 1963-64**

Item	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.
	No.	No.	No.	No.	No.	No.
Elementary and Secondary Education—						
Public and Separate—						
Schools.....	1,249	450	1,070	1,166	5,498 ^p	7,028
Teachers.....	5,036	1,132	7,423	6,358	54,743 ^p	58,283
Pupils.....	140,735	27,274	194,410	158,574	1,261,196 ^p	1,597,374
Overseas (DND)—						
Schools.....	...	...	...	...	...	...
Teachers.....	...	...	...	...	...	...
Pupils.....	...	...	...	...	...	...
Indian— ¹						
Schools.....	—	1	8	9	19	117
Teachers.....	—	2	31	24	111	289
Pupils.....	—	43	842	654	2,330	7,427
Blind—						
Schools.....	—	—	1	—	3	1
Teachers.....	—	—	26	—	52	35
Pupils (home province).....	33	5	78	39	265	195
Deaf—						
Schools.....	—	1	1	—	5	2
Teachers.....	—	1	41	—	142	104
Pupils (home province).....	66	12	145	107	979	689
Private—						
Schools.....	3	2	24	12	725 ^p	234
Teachers.....	12	25	289	154	7,125 ^p	2,593
Pupils.....	140	502	6,212	1,993	98,000 ^p	43,409
Higher Education—						
Institutions (1960-61).....	3	2	16	10	212	65
Students (full-time university grade).....	2,244	738	7,722	5,153	53,605	44,191
Teacher-Training—						
Teachers' Colleges—						
Institutions.....	—	1	1	1	107	11
Teachers.....	—	2	35	48	1,064	262
Students.....	—	50	413	972	14,421	6,390
Faculties of Education—						
Faculties ²	1	1	5	3	5	2
Teachers.....	20	2	16	11	98	76
Students ²	1,283	42	274	286	1,967	809
Vocational Education—						
Enrolment—						
Publicly sponsored vocational courses ³	2,550	356	2,400	4,983	34,260	28,399
Trade courses (apprentices) ⁴	354	84	1,199	1,663	5	3,650
Vocational high school courses..	366	491	1,636	7,696	21,473	132,175
Post-secondary courses.....	42	—	76	207	6,977	4,743
Private business schools.....	—	5	516 ^p	600 ^p	..	4,981 ^p
Private trade schools.....	—	—	93 ^p	81 ^p	..	1,755 ^p
Adult Education—						
Part-Time Enrolment—						
Universities (1962-63).....	2,420	483	9,629	8,477	53,130	66,920
Provincial governments (1962-63)	3,214	1,237	15,972	24,493	153,441	172,496

For footnotes, see end of table, p. 360.

**2.—Schools, Teachers and Enrolment for All Types of Education Institutions,
by Province, School Year 1963-64—concluded**

Item	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.
Elementary and Secondary Education—						
Public and Separate—						
Schools.....	1,726	1,755	1,210	1,400	84	22,636
Teachers.....	8,534	9,556	13,884	14,067	477	179,493
Pupils.....	212,644	227,641	336,652	378,387	9,418	4,544,305
Overseas (DND)—						
Schools.....	...	...	...	...	...	23
Teachers.....	...	...	...	...	...	430
Pupils.....	...	...	...	...	...	7,376
Indian—1						
Schools.....	81	74	42	88	1	440
Teachers.....	232	226	201	236	5	1,357
Pupils.....	5,943	5,434	4,334	6,237	161	33,405
Blind—						
Schools.....	—	—	—	1	—	6
Teachers.....	—	—	—	19	—	132
Pupils (home province).....	17	23	22	93	2	772
Deaf—						
Schools.....	1	1	1	1	—	13
Teachers.....	10	23	21	26	—	368
Pupils (home province).....	116	115	115	208	8	2,560
Private—						
Schools.....	55	27	35	103	—	1,220
Teachers.....	559	276	333	1,018	—	12,384
Pupils.....	11,175	4,665	6,436	23,242	—	195,774
Higher Education—						
Institutions (1960-61).....	10	17	11	8	—	354
Students (full-time university grade).....	8,802	7,811	11,079	17,043	—	158,388
Teacher-Training—						
Teachers' Colleges—						
Institutions.....	1	2	—	—	—	124
Teachers.....	22	43	—	—	—	1,476
Students.....	600	975	—	—	—	23,821
Faculties of Education—						
Faculties ²	2	2	2	2	—	25
Teachers.....	12	23	111	137	—	506
Students ³	311	1,386	3,265	3,347	—	12,970
Vocational Education—						
Enrolment—						
Publicly sponsored vocational courses ⁴	4,184	3,330	6,139	8,557	273	95,436
Trade courses (apprentices) ⁴	1,006	925	4,565	4,880	—	18,326
Vocational high school courses..	4,801	9,014	11,471	12,412	—	201,535
Post-secondary courses.....	294	316	1,687	150	—	14,492
Private business schools.....	1,197 ^p	1,234 ^p	1,428 ^p	2,942 ^p	—	..
Private trade schools.....	622 ^p	1,573 ^p	739 ^p	705 ^p	—	..
Adult Education—						
Part-Time Enrolment—						
Universities (1962-63).....	9,176	13,649	28,009	24,799	—	216,692
Provincial governments (1962-63)	38,749	27,220	40,871	142,451	103	860,493 ⁷

¹ Day, residential and hospital schools administered by the Federal Government. ² Also included with "Higher Education". ³ Under Programs 3, 4, 5, 6 and 8 of the Federal-Provincial Agreement, for fiscal year 1963-64.

⁴ Includes indentured apprentices taking full-time, part-time and correspondence courses.

⁵ Included under "Publicly sponsored vocational courses".

⁶ Included with Nova Scotia.

⁷ Includes enrolment in courses sponsored by public libraries, business colleges, teacher-training institutions and Federal Government departments not distributed by province.

An attempt has been made to tabulate total expenditure on education, including formal education at all levels, vocational training of all types and also expenditure on cultural activities related to education such as adult night classes, fine arts and handicraft courses, and libraries, museums and art galleries. Such expenditure for the year 1961 is presented in Table 3, classified by source. Details of income of school boards for publicly controlled elementary and secondary schools for the years 1959-61 are given at p. 365 and financial statistics for universities and colleges at pp. 369-370.

3.—Expenditure on Formal Education, Vocational Training and Related Cultural Activities, by Source of Funds, 1961

Type of Education	Local Taxation	Pro- vincial Govern- ments ¹	Federal Govern- ment	Fees	Other Sources	Total Expend- iture
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Formal Education—						
Elementary and Secondary—						
Public schools.....	689,673	625,926	27,832	2,879	46,268	1,392,578
Handicapped outside the public schools.....	159	9,386	...	...	326	9,871
Government correspondence schools.....	...	1,575	...	655	...	2,230
Reform schools.....	...	874	...	...	...	874
Indian and Eskimo education.....	...	...	34,046	...	...	34,046
Private schools.....	...	...	...	42,462	11,090	53,552
Totals, Elementary and Secondary.....	689,832	637,761	61,878	45,996	57,684	1,493,151
Teacher-training outside universities.....	...	16,743	9	706	106	17,564
Higher Education—						
Current operating expenditure.....	464	87,994	20,773	53,478	16,468	179,177
Plant expenditure from current funds.....	783	59,330	6,237	...	...	66,350
Research in universities.....	...	999	16,527	...	8,819	26,345
Defence colleges.....	...	...	5,711	...	...	5,711
Scholarships.....	...	7,676	4,036	...	4	11,716
Other.....	...	155	448	...	...	603
Totals, Higher Education.....	1,247	156,154	53,732	53,478	25,291	289,902
Undistributable expenditure.....	...	...	1,123	...	...	1,123
Totals, Formal Education.....	691,079	810,658	116,742	100,180	83,081	1,801,740
Vocational Training—						
Technician training.....	...	6,786	10,605	1,345	70	18,806
Apprenticeship.....	...	2,802	2,175	69	313	5,359
Trade training.....	...	8,896	8,241	550	542	18,229
Technical and vocational teachers.....	...	370	223	...	...	593
Unemployed.....	...	1,383	3,965	3	2	5,353
Handicapped.....	...	766	467	...	...	1,233
Health and welfare personnel.....	...	1,074	2,498	...	7	3,579
Inmates of reform institutions.....	...	363	337	...	...	700
Indians and Eskimos.....	...	...	537	...	...	537
Other vocational training costs.....	...	...	1,452	...	...	1,452
Provincial capital expenditures.....	...	11,577	²	...	...	11,577
Private business colleges.....	...	...	...	4,195	...	4,195
Totals, Vocational Training.....	...	34,017	30,500	6,162	934	71,613
Cultural Activities—³						
Adult education, including night schools.....	4	2,649	283	9	16	2,957
Fine arts.....	...	2,594	1,270	59	...	3,923
Handicrafts.....	...	150	...	2	...	152
Libraries ⁴	16,059	4,603	676	68	1,309	22,715
Archives, museums and art galleries.....	...	2,625	5,294	...	5	7,924
National Film Board productions.....	...	...	930	...	...	930
Cultural societies—grants.....	...	155	50	...	...	205
UNESCO—grant.....	...	—	489	...	...	489
Totals, Cultural Activities.....	16,059	12,776	8,992	138	1,330	39,295

¹ Includes the Yukon and Northwest Territories.

² Capital grants from the Federal Government are included in above items.

³ Limited to reported expenditures of public funds.

⁴ Included in "Elementary and Secondary—Public schools".

⁵ Includes capital costs from current funds.

Subsection 1.—Elementary and Secondary Schools

Control.—Direct control and operation of public schools is by school boards, which operate under school laws and regulations. Through amalgamations and consolidations, schools are now operated by boards of larger units, local boards within larger units, independent boards for rural schools, towns or cities, and some by official trustees appointed by the province in lieu of a board. As their designations imply, private schools are administered by private organizations and federal schools by federal authorities.

Table 4 gives the number of active public school boards in each province as at January 1965 and indicates the type of board, the number of official trustees and the number of board members elected or appointed to these boards.

4.—Active School Boards and School Trustees, by Province, as at January 1965

Province or District	Boards of Larger Units	Local Boards within Larger Units	Inde- pendent Local Boards	Total Boards	School Boards Composed of Trustees who are—			School Trustees
					All Elected	Some Appointed Some Elected	All Appointed	
	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland.....	278	—	—	278	—	—	278	2,955
Prince Edward Island.....	16	—	429	445	427	16	2	1,449
Nova Scotia.....	35	1,198	42	1,275	1,198	—	77	4,049
New Brunswick.....	14	210	—	224	105	119	—	1,346
Quebec—								
Roman Catholic.....	55	1,100	301	1,456	1,454	—	2	7,457
Protestant.....	9	64	134	207	195	—	12	922
Ontario ¹	1,015	11 ²	2,229	3,255	2,951	50	254	14,757
Manitoba.....	64	35	1,162	1,261	1,261	—	—	3,967
Saskatchewan.....	59	4,417	119	4,595	4,595	—	—	14,178
Alberta.....	59	—	141	200	200	—	—	899
British Columbia.....	83	—	10	93	93	—	—	423
Mackenzie District.....	—	—	3	3	3	—	—	11
Totals.....	1,687	7,035	4,570	13,292	12,482	185	625	52,413

¹ Based on data reported by the Department of Education—some for 1964 and some for 1965. In January 1965 the number of independent local boards was substantially reduced.

² Boards of Education, all members of Toronto Metropolitan Board.

Enrolment.—Table 5 shows enrolment of all elementary and secondary pupils in Canada and in Department of National Defence schools overseas, and classifies them by grade. Private schools and schools for Indian and Eskimo children are included in these figures. Enrolment in private schools accounted for 4 p.c. of the total 1963-64 enrolment at the elementary and secondary levels. Schools operated by Federal Government departments, that is, schools for Indian children, schools in the Territories and overseas schools for children of Service personnel, accounted for about 1 p.c. of the total.

School enrolment has been increasing in recent years much more rapidly than the general population. Annual rates of increase in total school enrolment for the four most recent years ranged from 3.8 p.c. to 5.0 p.c.; the country's population during the same period increased annually by amounts varying from 1.8 p.c. to 2.4 p.c.

**5.—Enrolment in Publicly Controlled, Private and Federal Schools, by Grade,
School Year 1963-64**

Grade	New- foundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec ¹	Ontario
	No.	No.	No.	No.	No.	No.
Kindergarten.....	6,524	70	18,252	75	24,047	111,205
Grade 1.....	15,685	3,131	18,386	18,068	148,368	164,674
Grade 2.....	14,925	2,861	18,084	17,074	142,715	152,360
Grade 3.....	14,694	2,788	18,869	16,686	146,640	145,576
Grade 4.....	14,574	2,666	18,430	16,295	146,874	137,422
Grade 5.....	14,134	2,636	18,061	16,416	132,583	135,705
Grade 6.....	13,114	2,549	17,155	15,265	129,580	130,225
Grade 7.....	12,520	2,472	17,520	15,033	117,689	124,806
Grade 8.....	11,277	2,575	15,625	13,077	114,801	116,549
Grade 9.....	10,893	2,154	13,815	12,248	101,455	119,882
Grade 10.....	6,880	1,909	12,070	9,111	74,728	103,630
Grade 11.....	5,210	1,113	9,185	6,617	53,853	79,763
Grade 12.....	57	714	4,334	4,667	12,235	63,704
Grade 13.....	—	—	—	59	612	29,392
Auxiliary.....	61	52	1,067	342	13,665	20,418
Special.....	327	129	611	188	1,651	12,899
Totals.....	140,875	27,819	201,464	161,221	1,361,526	1,648,210

Grade	Manitoba	Saskat- chewan	Alberta	British Columbia	Yukon and N.W.T. ²	DND Schools Overseas	Canada
	No.	No.	No.	No.	No.	No.	No.
Kindergarten.....	6,320	3,628	771	11,143	519	889	183,443
Grade 1.....	24,225	24,484	37,504	41,617	1,603	1,058	498,803
Grade 2.....	22,109	23,086	35,386	39,063	1,369	908	469,940
Grade 3.....	21,874	22,824	35,167	37,914	1,270	749	465,051
Grade 4.....	21,518	22,379	33,739	36,759	1,019	659	452,334
Grade 5.....	21,034	21,517	32,071	35,038	881	574	430,650
Grade 6.....	19,675	20,411	30,354	33,446	695	506	412,975
Grade 7.....	19,955	19,641	28,979	32,014	587	445	391,661
Grade 8.....	17,497	18,183	26,651	32,740	501	404	369,880
Grade 9.....	17,357	18,924	25,789	31,293	399	443	354,652
Grade 10.....	15,147	16,191	22,237	28,458	278	300	290,939
Grade 11.....	13,840	13,795	20,105	23,917	198	234	227,830
Grade 12.....	7,830	11,065	18,635	17,777	119	140	141,277
Grade 13.....	—	—	—	3,063	10	67	33,203
Auxiliary.....	1,339	1,289	34	3,534	8	—	41,809
Special.....	42	323	—	90	123	—	16,413
Totals.....	229,762	237,740	347,422	407,866	9,579²	7,376	4,780,860

¹ Includes Ungava District of Quebec.² Total for Yukon Territory was 3,338 pupils.

Teaching Staffs.—Between the school years ended in 1944 and 1964 the number of teachers in the publicly controlled schools of the ten provinces increased 146 p.c. from 75,440 to 185,273. The number of men teachers increased 286 p.c. and the number of women teachers 110 p.c.

In 1964, in nine provinces (excluding Quebec), 84 p.c. of the teachers had at least senior matriculation and one year of teacher-training, and an additional 8.5 p.c. had one year less schooling. Median experience in the eight provinces outside of Quebec and Ontario has increased slowly from 6.7 years in 1944 to 8.2 years in 1964, despite the large number of new teachers each year. Many of these have been recruited by the cities, where the median experience has declined from a high of 16.7 years in 1946 to 13.4 years in 1954 and 8.9 years in 1964.

Between 1944 and 1964 the median salary for all teachers in the nine provinces other than Quebec increased 330 p.c. from \$1,098 to \$4,722. That for teachers in one-room schools increased 256 p.c. from \$924 to \$3,290. Naturally, the rate of increase from one year to the next has fluctuated considerably, ranging from 16.8 p.c. between 1947 and 1948 to 2.4 p.c. between 1962 and 1963. The increase between 1963 and 1964 was 4.4 p.c. as compared with 2.4 p.c. between 1962 and 1963.

6.—Teachers and Principals in Publicly Controlled Elementary and Secondary Schools, School Year 1963-64

Province and Sex	Number	Median Salary	Median Experience	Fully Qualified ¹	University Graduates
TEACHING ELEMENTARY GRADES ²					
		\$	yrs.	p.c.	p.c.
Newfoundland.....M.	1,145	2,351	2.7	22.4	7.9
F.	2,817	2,553	2.6	14.1	3.2
Prince Edward Island.....M.	98	2,739	4.3	40.8	10.2
F.	799	2,633	8.0	18.4	2.0
Nova Scotia.....M.	551	3,722	5.3	87.5	33.6
F.	4,723	3,245	11.2	67.9	10.6
New Brunswick.....M.	469	3,513	4.2	57.8	..
F.	4,069	2,849	8.7	37.6	..
Quebec.....	..	..	..	..	..
Ontario.....M.	10,563	4,685	5.6	95.4	22.1
F.	30,562	4,075	6.9	89.3	6.0
Manitoba.....M.	1,467	3,751	5.1	87.3	14.7
F.	4,427	3,718	7.6	87.2	6.3
Saskatchewan.....M.	1,726	4,332	5.0	98.0	13.4
F.	5,108	4,133	8.4	97.6	3.2
Alberta.....M.	1,713	5,381	6.6	93.5	39.1
F.	7,070	4,691	10.0	88.9	9.1
British Columbia.....M.	2,351	5,624	7.3	94.2	35.7
F.	5,917	5,012	7.5	90.9	11.7
TEACHING SECONDARY GRADES ³					
		\$	yrs.	p.c.	p.c.
Newfoundland.....M.	742	4,300	6.1	44.6	46.8
F.	332	3,934	8.9	30.4	31.9
Prince Edward Island.....M.	109	4,156	3.9	52.3	52.3
F.	126	3,752	10.7	38.1	32.5
Nova Scotia.....M.	1,081	5,229	7.7	79.8	66.3
F.	1,068	4,650	11.5	63.7	56.6
New Brunswick.....M.	970	5,093	6.9	58.1	..
F.	850	4,299	10.3	41.2	..
Quebec.....	..	..	..	..	..
Ontario.....M.	11,657	7,242	5.9	69.8	81.8
F.	5,501	6,459	4.9	72.2	86.7
Manitoba.....M.	1,643	5,654	7.3	68.4	72.3
F.	997	5,240	9.1	61.6	63.0
Saskatchewan.....M.	1,868	6,061	11.9	65.4	63.7
F.	854	4,982	12.5	49.3	49.6
Alberta.....M.	3,185	6,410	9.2	70.5	72.6
F.	1,916	5,355	11.3	51.6	53.7
British Columbia.....M.	3,882	7,277	10.4	86.8	73.6
F.	1,917	6,518	10.7	73.7	68.3

¹ Fully qualified at the elementary level are teachers with junior matriculation and two or more years, or senior matriculation and one or more years of professional training. At the secondary level they are teachers with junior matriculation and four or more years, or senior matriculation and three or more years of schooling, of which one year was professional training.

² Comprises teachers and principals instructing or supervising kindergarten and elementary grades only, and those instructing or supervising both elementary and secondary grades in rural schools with five or fewer classes. Teachers and principals in Ontario are classified as elementary according to the provincial *Report of the Minister, 1962*.

³ Comprises teachers and principals instructing or supervising secondary grades only, and those instructing or supervising both elementary and secondary grades in urban centres and in rural schools with six or more classes. Teachers and principals in Ontario are classified as secondary according to the provincial *Report of the Minister, 1962*.

Financial Support.—Table 7 shows details of the income of public school boards for the years 1959-61. In most provinces, local taxation is the most important source of revenue followed by provincial government grants. In 1961, all other sources of income accounted for less than 4 p.c. of total current revenue. Newfoundland differs significantly

from other provinces in its method of school finance. Local taxation is non-existent outside of four School Tax Authorities and provincial grants are the major source of income, with other sources accounting for 11.9 p.c. of current revenue.

Usually school boards requisition the local municipalities for the sums needed to balance their budgets after taking account of provincial grants and other income. Exceptions to this rule are mostly in areas where there is no municipal organization and where the school boards assess and levy taxes themselves. School taxes are levied on land and buildings and, in some cases, on improvements and personal property. Several provinces have taken steps to equalize real property assessment.

Only four provinces collect and publish figures for debenture indebtedness, although it is the usual practice in all provinces, except Newfoundland, for boards to finance new construction, at least in part, by issuing debentures. Provincial aid toward capital expenditures may take the form of a percentage of total cost, a fixed amount per classroom or assistance with debenture debt charges. Many provinces guarantee debentures issued by school boards and others assist in marketing them.

7.—Income of School Boards for Publicly Controlled Elementary and Secondary Schools, by Province, Years Ended Mar. 31, 1959-61

NOTE.—The receipts shown in this table do not include any amounts raised by loans or the sale of bonds or debentures as all revenue of this nature must be repaid ultimately with money raised by local taxation. Figures from 1914 are given in the corresponding table of previous Year Books beginning with the 1936 edition.

Province and Year	Income from—			Total Current Revenue Recorded	Debenture Indebtedness ¹
	Provincial Government Grants	Local Taxation	Other Sources		
	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....1959	12,861	205	1,838	14,904	..
.....1960	14,879	212	2,073	17,164	..
.....1961	15,735	205	2,151	18,091	..
Prince Edward Island.....1959	1,565	1,273	60	2,898	..
.....1960	2,154	1,333	70	3,557	..
.....1961	2,478	1,412	97	3,987	..
Nova Scotia.....1959	14,038	16,878	457	31,373	..
.....1960	15,859	19,185	493	35,537	..
.....1961	16,863	20,960	1,233	39,056	..
New Brunswick.....1959	8,508	16,211	832	25,551	..
.....1960	9,135	17,830	1,200	28,165	..
.....1961	9,350	19,567	825	29,742	..
Quebec.....1959	63,936	144,046	6,864	214,846	289,782
.....1960	76,838	162,446	7,260	246,544	342,709
.....1961	114,725	160,235	10,907	285,867	393,250
Ontario.....1959	150,157	240,149	11,843	402,149	..
.....1960	160,791	267,041	12,970	440,802	..
.....1961	181,546	294,049	13,279	488,874	..
Manitoba.....1959	20,244	27,935	142	48,321	34,849
.....1960	24,776	30,899	82	55,757	48,065
.....1961	25,186	35,974	58	61,218	60,778
Saskatchewan.....1959	25,443	35,111	1,506	62,060	37,170
.....1960	28,965	38,815	1,701	69,481	44,790
.....1961	31,285	40,464	1,836	73,575	47,134
Alberta.....1959	50,830	46,671	1,727	99,228	106,249
.....1960	56,118	54,364	1,359	111,831	116,445
.....1961	63,547	52,445	1,332	117,324	111,844
British Columbia.....1959	48,576	52,226	1,925	103,727	..
.....1960	55,043	59,494	2,332	116,869	..
.....1961	58,934	64,102	2,560	125,596	..

¹ Net figures, after deduction of sinking funds.

Subsection 2.—Universities and Colleges

Institutions.—In 1960-61 there were in Canada 354 institutions of higher education offering one or more years of degree-credit courses—304 under the control of religious bodies (264 Roman Catholic), 23 under provincial government control, three under Federal Government control, and 24 under private non-denominational control. These institutions were distributed by province as follows:—

Province	Active Degree- Granting Institutions	Other Institutions	Total
	No.	No.	No.
Newfoundland.....	1	2	3
Prince Edward Island.....	1	1	2
Nova Scotia.....	9	7	16
New Brunswick.....	6	4	10
Quebec.....	8	204	212
Ontario.....	21	44	65
Manitoba.....	3	7	10
Saskatchewan.....	5	12	17
Alberta.....	2	9	11
British Columbia.....	3	5	8
TOTALS.....	59	295	354

Enrolment.—Full-time university-grade enrolment continues to increase year by year and indications are that enrolments may well be double the 1964-65 figure of 178,238 in about seven years. Table 8 shows full-time enrolment by province for the academic years ended 1962-65. In addition to full-time students, there were about 64,000 part-time university-grade students (including over 7,000 graduate students) in attendance during the regular 1964-65 winter session and nearly 7,000 students taking university-grade credit correspondence courses.

8.—Full-Time Regular Winter Session University-Grade Enrolment, by Province, Academic Years Ended 1962-65

Province	1961-62		1962-63		1963-64*		1964-65	
	Total ¹	Graduate Only ¹	Total	Graduate Only	Total	Graduate Only	Total	Graduate Only
	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland.....	1,757	17	1,998	34	2,244	47	2,652	51
Prince Edward Island.....	683	—	705	—	738	—	802	—
Nova Scotia.....	6,409	172	7,024	242	7,722	269	8,509	400
New Brunswick.....	4,533	149	4,896	181	5,153	199	5,773	305
Quebec.....	43,156	2,307	47,324	2,813	53,605	3,868	59,400	4,641
Ontario.....	35,871	2,903	39,269	3,328	44,191	4,201	50,793	5,424
Manitoba.....	6,947	294	7,741	296	8,802	564	9,172	531
Saskatchewan.....	6,329	226	7,024	253	7,811	315	9,603	337
Alberta.....	8,499	471	9,837	656	11,079	825	12,977	1,048
British Columbia.....	14,710	808	15,560	633	17,043	845	18,557	1,060
Totals.....	128,894	7,347	141,388	8,436	158,388	11,133	178,238	13,797

¹ All theology enrolment included as undergraduate.

Foreign enrolment has risen considerably during the past decade, with a larger proportion of students from countries other than the United States and Britain coming to Canadian institutions, as shown in Table 9. In 1963-64 about one of every 17 full-time university students in Canada was a resident of a country other than Canada. The United States of America, Hong Kong, Trinidad and Tobago, India, and Britain each accounted for over 500 students while France, Pakistan, Malaysia, Viet-Nam, Nigeria and Jamaica contributed from 100 to 400 each. About 150 other countries or territories were represented in the figures.

9.—Students from Other Countries in Canadian Universities, and Canadian Students in Universities in the United States and Britain, Selected Academic Years Ended 1931-64

Academic Year Ended—	Total Full-Time University Enrolment in Canada	Students with Residence in—					Enrolment from Other Countries in Canada		Canadians Studying in—	
		United States	Britain	British West Indies	Newfoundland ¹	Other Countries	From all Countries	From British Commonwealth Only	United States ²	Britain ³
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1931.....	32,926	1,506	233	54	175	236	2,304	..	1,313	212
1941.....	36,319	1,478	41	74	174	289	2,056	..	1,458	..
1951.....	68,306	1,758	164	252	...	1,014	3,188	..	4,528	372
1956.....	72,737	1,773	281	635	...	1,696	4,385	..	4,990	404
1961.....	113,864	2,362	582	1,210	...	3,097	7,251	3,294	6,058	502
1962.....	128,894	2,660	577	1,251	...	3,412	7,900	3,552	6,571	559
1963.....	141,388	2,845	650	1,153	...	3,870	8,518	3,763	7,004	657
1964.....	158,388	3,193	687	1,214	...	4,396	9,490	4,202	8,458	652

¹ Before 1949, Newfoundland was considered as being a country outside Canada.

Institute of International Education, New York.

² Data from the Association of Commonwealth Universities, London, England. Newfoundland is included with Canada for all years.

Graduates.—Table 10 gives figures for graduates in most faculties for the academic years ended 1962-64. A total of 29,084 bachelor and first professional degrees and equivalent diplomas were granted in 1963-64. Included in the total were 8,368 women.

10.—Graduates from Universities and Colleges, Academic Years Ended 1962-64

NOTE.—Figures for 1920-36 are given in the 1938 Year Book, pp. 993-997, and for 1937-61 in the corresponding table of subsequent editions.

Field of Study	1961-62		1962-63		1963-64	
	Total	Female	Total	Female	Total	Female
	No.	No.	No.	No.	No.	No.
Graduates in Arts, Pure Science and Commerce..	12,231	3,516	13,955	3,959	16,517	4,784
Bachelors of Arts ¹	9,250	3,154	10,532	3,560	12,438	4,308
Bachelors of Science (in Arts) ²	1,879	310	2,237	352	2,684	411
Bachelors of Commerce ³	1,102	52	1,186	47	1,395	65
Graduates in Applied Science.....	2,673	7	2,435	5	2,643	7
Bachelors of Applied Science in Engineering.....	2,437	4	2,246	2	2,422	7
Bachelors of Architecture ⁴	120	3	96	3	113	—
Bachelors of Forestry.....	110	—	88	—	105	—
Bachelors of Fisheries.....	6	—	5	—	3	—
Graduates in Agriculture, Veterinary Science and Household Science.....	710	299	763	336	799	340
Bachelors of Agricultural Science.....	351	9	357	13	392	12
First degrees in Veterinary Science.....	72	3	85	2	83	6
Bachelors of Household Science.....	287	287	321	321	324	322
Graduates in Education, Library Science and Social Service.....	3,833	1,595	4,369	1,845	5,117	2,151
First degrees in education or pedagogy.....	3,009	1,158	3,495	1,379	3,998	1,572
Librarian degrees and diplomas.....	268	189	265	195	348	256
Physical education first degrees and diplomas.....	321	90	337	104	472	144
Social service degrees and diplomas.....	235	158	272	167	299	179

For footnotes, see end of table, p. 368.

10.—Graduates from Universities and Colleges, Academic Years Ended 1962-64—concluded

Field of Study	1961-62		1962-63		1963-64	
	Total	Female	Total	Female	Total	Female
	No.	No.	No.	No.	No.	No.
Graduates in Medicine and Related Studies	1,934	705	1,989	709	2,111	835
Medical doctors.....	846	86	826	65	773	71
Dentists.....	229	8	259	5	258	14
Pharmacists.....	281	78	293	75	266	91
First degrees in nursing.....	384	383	386	386	407	407
Physiotherapy and occupational therapy.....	147	147	173	173	249	247
Chiropractic.....	19	1	19	3	26	4
Optometry.....	28	2	33	2	32	1
Graduates in Law and Theology	1,519	67	1,457	67	1,602	70
First degrees and equivalent diplomas in law.....	661	37	588	24	701	32
Roman Catholic theological colleges.....	530	—	545	—	560	—
Protestant theological colleges ^a	328	30	324	43	341	38
Other First Degrees and Equivalent Diplomas ...	202	131	253	132	295	181
Bachelors of Fine and Applied Arts.....	14	9	13	8	21	11
Bachelors of Interior Design.....	10	8	24	11	24	21
Journalism.....	26	12	33	15	32	16
Bachelors of Music.....	80	57	77	51	90	64
Others.....	72	45	106	47	128	69
Graduate and Honorary Degrees	3,374	640	3,827	698	4,215	722
Honorary doctorates.....	240	11	254	7	244	13
Doctorates in course.....	321	26	421	34	481	38
Masters of Arts ^b	1,497	339	1,705	402	1,947	464
Masters of Science ^c	753	47	843	72	980	62
Licences (except Theology) ^d	563	217	604	183	563	145

¹ Includes Bachelors of Letters and Social Science.² Some institutions include Science degrees in Arts.³ Includes Bachelors of Accounting and Secretarial Science.⁴ Includes diplomas in Architecture from the⁵ Includes all diplomas and degrees except for Bachelors of Divinity.⁶ Includes M. Com., M.Ed., M.Paed., M.S.W., as well as M.A. In some institutions, M.Sc. degrees are included with M.A.'s.⁷ Includes M.A.Sc., M.S.A., M.Sc.F., M. Arch., M.V.Sc., M.Sc. Dent., M. Surgery (where conferred separately) as well as M.Sc.⁸ The "Licence" in the French-language universities is the next degree in advance of the Bachelor.**Teaching Staffs.**—Table 11 shows the trend in university teaching staffs since 1956.**11.—Full-Time Teaching Complement in Universities and Colleges, Academic Years Ended 1956-65**

NOTE.—Figures (except for 1956) are estimates based on returns from institutions representing about 50 p.c. of the total enrolment and include some research personnel and junior and sessional lecturers and assistants.

Academic Year Ended—	Teachers	Academic Year Ended—	Teachers
	No.		No.
1956.....	6,719	1961.....	9,755
1957.....	7,000	1962.....	10,540
1958.....	7,500	1963.....	11,670
1959.....	8,200	1964.....	12,940
1960.....	9,200	1965.....	14,300

Table 12 gives median salaries, by rank and region, for the staffs of 17 major institutions for 1964-65.

12.—Median Salaries of Teachers at 17 Universities, Academic Year 1964-65

NOTE.—Institutions include: *West*—Universities of Manitoba, Saskatchewan, Alberta, British Columbia; *Central*—Bishop's, McGill, Queen's, Toronto, Victoria, Trinity, McMaster, Western Ontario; *Atlantic*—Acadia, Dalhousie, St. Francis Xavier, Mount Allison, New Brunswick.

Rank	Region				Staff Com- plement
	Atlantic Provinces	Central Provinces	Western Provinces	Total	
	\$	\$	\$	\$	No.
Deans.....	14,000	18,313	17,393	17,361	129
Professors.....	11,662	14,416	14,206	14,163	1,299
Associate professors.....	9,234	10,520	10,906	10,634	1,683
Assistant professors.....	7,617	8,429	8,479	8,390	2,006
Instructors and lecturers.....	6,284	6,784	6,823	6,747	1,131
Totals, All Ranks.....	8,419	9,959	9,766	9,668	6,274¹

¹ Includes 26 ungraded professors not distributed above.

Finances.—Table 13 gives a ten-year series of the finances of Canadian universities. Since 1954 they have received more than one half of their revenue from government grants and a very small amount from municipal councils. Beginning with the academic year 1951-52, the Federal Government has provided university grants to help meet current operating costs. These grants were originally paid on the basis of 50 cents per head of population in each province and the eligible institutions received their share of the provincial allotment according to the number of full-time students in undergraduate and graduate courses. The rate of grant was increased to \$1.00 per capita in 1956-57, to \$1.50 in 1958-59 and to \$2.00 in 1962-63. The Province of Quebec did not accept this grant for the years up to 1955-56. From 1956-57 to 1959-60 the payments refused by Quebec were held in trust by the Canadian Universities Foundation,* which administers the fund. In 1960-61 the Quebec Government and the Federal Government negotiated a new tax-sharing agreement under which Quebec provides its own grants and is reimbursed by an abatement of corporation tax. Table 14 gives details of the federal grants for each of the academic years ended 1963-65.

The Federal Government also provides assistance to universities through the University Capital Grants Fund which is administered by the Canada Council. The original amount in the fund was \$50,000,000 (interest and profits to Mar. 31, 1964 increased it to over \$65,000,000), to be granted in amounts not exceeding 50 p.c. of specific building or capital equipment projects, having regard to the population of each province. Up to the end of March 1964, a total of over \$54,000,000 had been authorized. Grants are paid in four equal instalments spread over the period of construction so that there is a time lag between approval and payment.

The Canada Council was also endowed with an additional \$50,000,000 (raised by \$10,000,000 Apr. 3, 1965), the interest on which is available for the provision of scholarships or other assistance in the fields of the arts, humanities and social sciences (see also pp. 382-383).

*On Aug. 1, 1965 the Canadian Universities Foundation became the Association of Universities and Colleges of Canada.

13.—Current Income and Expenditure of Universities and Colleges, Academic Years Ended 1954-63

Academic Year Ended—	Current Income					Total Current Expenditure
	Endowments and Investments	Government Grants	Student Fees ¹	Miscellaneous	Total ¹	
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1954.....	2,979	26,554	14,260	6,675	50,468	50,116
1955.....	3,651	41,786	21,285	9,037	75,759	76,057
1956.....	4,692	45,107	21,600	8,938	80,337	80,427
1957.....	5,014	49,911	25,105	10,733	90,763	86,521
1958.....	4,375	57,118	30,867	10,304	102,664	102,991
1959.....	4,668	70,843	33,546	11,373	120,430	121,113
1960.....	5,082	82,515	40,789	14,132	142,518	143,311
1961.....	5,332	110,183	45,991	14,396	175,902	175,970
1962 ²	7,854	121,461	50,249	26,128	211,672	211,330
1963 ²	8,191	142,606	62,397	27,107	240,301	244,015

¹ Board and lodging not included.² Includes the Canadian Services Colleges.

14.—Federal Government University Grants, by Province, Academic Years Ended 1963-65

NOTE.—Figures for 1952-62 are given in the corresponding table of previous Year Books beginning with the 1955 edition.

Province and Academic Year Ended—	Institutions	Eligible Enrolment	Total Grants	Grant per Eligible Student
	No.	No.	\$	\$
Newfoundland.....1963	1	1,998	940,000	470.47
.....1964	1	2,244	962,000	428.70
.....1965	1	2,652	982,000	370.29
Prince Edward Island.....1963	2	705	212,000	300.71
.....1964	2	734	214,000	291.55
.....1965	2	802	214,000	266.83
Nova Scotia.....1963	13	6,943	1,492,000	214.89
.....1964	13	7,505	1,512,000	201.47
.....1965	13	8,297	1,520,000	183.20
New Brunswick.....1963	6	4,892	1,214,000	248.16
.....1964	4	5,143	1,228,000	238.77
.....1965	4	5,759	1,234,000	214.27
Quebec ¹.....	...	...	...	...
Ontario.....1963	30	35,185	12,684,000	360.49
.....1964	31	39,964	12,896,000	322.69
.....1965	33	46,778	13,172,000	281.59
Manitoba.....1963	8	7,583	1,870,000	246.60
.....1964	8	8,516	1,900,000	223.11
.....1965	8	8,892	1,916,000	215.47
Saskatchewan.....1963	14	6,907	1,860,000	269.29
.....1964	14	7,652	1,866,000	243.86
.....1965	13	9,456	1,886,000	199.45
Alberta.....1963	6	9,379	2,740,000	292.14
.....1964	6	10,446	2,810,000	269.00
.....1965	7	12,517	2,864,000	228.81
British Columbia.....1963	5	15,159	3,318,000	218.88
.....1964	5	16,516	3,390,000	205.26
.....1965	5	17,958	3,476,000	193.56
Totals¹.....1963	85	88,751	26,330,000	296.67
.....1964	84	98,720	26,778,000	271.25
.....1965	86	113,111	27,264,000	241.04

¹ See text on p. 369 re Quebec.

Subsection 3.—Vocational Education

Table 15 summarizes the data on full-time vocational training classes. The duration of these classes may vary from three weeks taken annually by indentured apprentices at provincially operated trade schools, to two-year vocational high school courses or three-year post-secondary courses offered in provincial institutes of technology. Numerous skills are taught, ranging from short courses in welding or typing to extended courses for instrument technicians or aircraft maintenance men. Students taking two-year or three-year vocational courses in public secondary schools may, upon completion, enter employment or may continue other formal training in a trade school or an institute of technology.

In addition to the full-time vocational courses, a great variety of part-time instruction is offered by both public and private institutions as an alternative to full-time training or as an attraction to the individual interested in a hobby.

15.—Full-Time Enrolment in Vocational Courses, School Year 1962-63

Item	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.
	No.	No.	No.	No.	No.	No.
Publicly Sponsored—						
Trade courses for the unemployed and disabled ¹	501	196	1,087	4,284	7,721	19,478
Vocational high school courses.....	475	165	916	5,500	20,526	95,834
Post-secondary technical courses..	—	—	34	149	5,924 ²	3,990
Apprenticeship courses.....	239	—	311	269	1,009	3,539
Privately Sponsored—						
Trade school courses.....	—	—	117	—	7,079	2,612
Business school courses.....	—	490	—	654	6,065	6,120
Totals.....	1,215	3,316		10,856	48,324	131,573
	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.
Publicly Sponsored—						
Trade courses for the unemployed and disabled ¹	2,600	1,308	1,696	2,477	59	41,407
Vocational high school courses....	4,653	5,359	6,890	11,394	—	151,712
Post-secondary technical courses..	—	218	1,154	202	—	11,671
Apprenticeship courses.....	867	883	4,367	698	—	12,182 ³
Privately Sponsored—						
Trade school courses.....	555	1,717	616	695	—	13,391 ⁴
Business school courses.....	1,194	1,129	1,834	2,728	—	20,214 ⁵
Totals.....	9,869	10,614	16,557	18,194	59	250,577

¹ Enrolment figures based on fiscal year. ² Excludes 2,248 full-time students in one-year preparatory courses at institutes of technology. ³ In addition, there were 13,205 part-time students and 291 students taking correspondence courses. ⁴ Excludes 16,719 part-time students and 32,245 students taking correspondence courses from private trade schools and business schools. ⁵ Excludes some 19,000 part-time students.

Subsection 4.—Adult Education

Universities and colleges, federal, provincial and municipal governments, and a wide variety of private schools, employers and organizations provide for adult education activities in Canada. National voluntary organizations assist in co-ordinating these efforts, the most important being the Canadian Association for Adult Education and l'Institut canadien d'éducation des adultes.

Annual DBS surveys from 1957-58 to 1962-63 show pronounced increases in enrolment in courses for credit toward a high school diploma or a university degree, and substantial enrolments in vocational adult courses. Enrolments in courses on social and other cultural subjects did not increase as rapidly but each year account for important portions of the total enrolment.

In 1962-63, 92 universities and colleges reported a total course enrolment of 216,692, of which 40.7 p.c. was for credit toward a university degree and 28.3 p.c. was in professional training and refresher courses. Informal study included community development groups, fine arts, literature and language classes, current events study groups and marriage preparation courses. Federal and provincial government departments conducted or assisted municipal boards to conduct courses with a total enrolment of 694,705, of which 16.4 p.c. was in academic subjects for credit toward a high school diploma and 52.5 p.c. in vocational courses. Government agencies also sponsored public health courses, language and citizenship classes for new Canadians, French-English conversation groups, leadership training and fine arts courses. Other sponsors who reported, as indicated in Table 16, brought the total enrolment to 1,077,185.

In addition to organized classes and courses, sponsors of adult education arranged public lectures, film showings, exhibits, performances and similar activities, which drew a total attendance of almost 4,000,000. Institutions and agencies offering programs of adult education prepared television and radio programs, information materials, and exhibits for fairs and conferences. The National Film Board and the Canadian Broadcasting Corporation co-operated with other sponsors in the production of program materials and adult education agencies provided consultative services to organizations and individuals.

16.—Adult Education Activities, School Year 1962-63

Province or Territory and Sponsor	Part-Time Enrolment in—			Total Enrolment	Attendance at Public Lectures, etc.
	Academic Subjects	Vocational and Professional Training	Informal Courses		
	No.	No.	No.	No.	No.
Newfoundland—					
Universities.....	612	239	1,569	2,420	11,000
Government ¹	1,827	1,387	—	3,214	10,200
Prince Edward Island—					
Universities.....	304	31	58	483	—
Government ¹	134	653	450	1,237	97,090
Nova Scotia—					
Universities.....	2,865	4,763	2,001	9,629	35,627
Government ¹	2,214	10,845	2,913	15,972	10,000
New Brunswick—					
Universities.....	3,866	3,158	1,452	8,477	21,500
Government ¹	2,135	15,468	6,890	24,493	22,046
Quebec—					
Universities.....	25,918	16,049	11,163	53,130	89,532
Government ¹	26,465	75,476	51,500	153,441	144,218
Ontario—					
Universities.....	26,823	15,915	24,182	66,920	459,919
Government ¹	31,447	67,520	73,529	172,496	98,195
Manitoba—					
Universities.....	5,534	769	2,873	9,176	79,267
Government ¹	4,223	13,942	20,584	38,749	317,056
Saskatchewan—					
Universities.....	6,656	3,697	3,296	13,649	3,591
Government ¹	8,929	12,977	5,314	27,220	569,067
Alberta—					
Universities.....	5,888	9,259	12,862	28,009	56,300
Government ¹	6,945	30,174	3,252	40,371	324,368
British Columbia—					
Universities.....	9,731	7,363	7,705	24,799	207,000
Government ¹	19,908	76,231	46,312	142,451	270,311
Yukon Territory.....	5	76	22	103	—
Federal Government.....	9,742	92,829	5,038	107,609	645,227
Public libraries.....	—	—	9,009	9,009	500,438
Business colleges.....	—	23,903	—	23,903	—
Teacher-training institutions.....	—	37,614	—	37,614	—
Trade schools.....	—	42,005	—	42,005	—
Training in industry.....	—	61,080	—	61,080	—
Totals, 1962-63².....	201,686	582,673	292,826	1,077,185	3,972,002
Totals, 1961-62².....	215,878	420,480	413,992	1,050,350	3,281,178

¹ Operated and assisted by federal and provincial departments and agencies.

² Unduplicated enrolment.

PART II.—CULTURAL ACTIVITIES RELATED TO EDUCATION

Section 1.—The Arts and Education*

Fine Art Schools, Galleries and Organizations.—Fine art (architecture, painting and drawing, commercial and decorative arts, graphics, ceramics and sculpture) appears as an elective subject of the faculty of arts in a number of universities, where it may be taken as one of five, six or more subjects for a year or two. Five universities offer a Bachelor of Fine Arts degree:—

University of Alberta, Edmonton, Alta.
 University of Manitoba, Winnipeg, Man.
 Mount Allison University, Sackville, N.B.
 Dalhousie University, Halifax, N.S.—in affiliation with the Nova Scotia College of Art.
 University of Toronto, Toronto, Ont.—B.A. with Honours in Fine Art, and also a Master's degree.

Eight universities offer a Bachelor of Arts degree with a major in fine art:—

University of Alberta, Edmonton, Alta.
 University of British Columbia, Vancouver, B.C.
 McMaster University, Hamilton, Ont.
 Mount Allison University, Sackville, N.B.
 Queen's University, Kingston, Ont.
 University of Saskatchewan, Saskatoon, Sask.
 Sir George Williams University, Montreal, Que.
 University of Windsor, Windsor, Ont.

There are many schools of art with varying academic requirements for admission. These offer diploma or certificate courses and are concerned largely with the technical development of the artist. Among those widely known are:—

Nova Scotia College of Art, Halifax, N.S.
 École des Beaux-Arts, Quebec, Que.
 École des Beaux-Arts, Montreal, Que.
 School of Art and Design, Montreal Museum of Fine Arts, Montreal, Que.
 University of Manitoba School of Fine Arts, Winnipeg, Man.
 School of Art, Regina Campus, University of Saskatchewan, Regina, Sask.
 Alberta College of Art, Calgary, Alta.
 Institut des Arts Appliqués, Montreal, Que.
 Vancouver School of Art, Vancouver, B.C.
 Kootenay School of Art, Nelson, B.C.

Courses in these schools vary in length with the requirements of the individual student but may extend over as many as four years. In some of these schools fine crafts as well as fine arts are taught. Summer schools of art are sponsored by some of the foregoing institutions, by universities and by various independent groups. One of the more important summer schools is the Banff School of Fine Arts, affiliated with the University of Alberta. Two booklets published by the Canadian Cultural Information Centre provide details on courses in the fine arts—*Facilities for Study in the Arts in Canada* and *Some Summer Courses in the Arts in Canada*.*

Public art galleries in the principal cities perform valuable educational services among adults and children. Children's Saturday classes, conducted tours for school pupils and adults, radio talks, lectures and concerts are features of the programs of the various galleries. Many of these institutions supply their surrounding areas with travelling exhibitions and some range even farther afield. Several organizations such as the Maritime Art Association, the Atlantic Provinces Art Circuit, the Western Canada Art Circuit, the Art Institute of Ontario and the Queen's Art Circuit have been founded to carry out this sort of travelling

*Further information on this subject may be obtained from the Canadian Cultural Information Centre, 56 Sparks St., Ottawa.

program on a regional basis. The National Gallery of Canada conducts a nation-wide program of this nature and is the third largest circulating agency in North America. Several galleries maintain an art-lending or rental service.

Among the principal public art galleries are:—

Beaverbrook Art Gallery, Fredericton, N.B.
 Montreal Museum of Fine Arts, Montreal, Que.
 National Gallery of Canada, Ottawa, Ont.
 Public Library and Art Museum, London, Ont.
 Art Gallery of Toronto, Toronto, Ont.
 Art Gallery of Hamilton, Hamilton, Ont.
 Willistead Art Gallery, Windsor, Ont.
 Winnipeg Art Gallery, Winnipeg, Man.
 Kitchener-Waterloo Art Gallery, Kitchener, Ont.
 Mendel Art Gallery, Saskatoon, Sask.
 Edmonton Art Gallery, Edmonton, Alta.
 Vancouver Art Gallery, Vancouver, B.C.
 Art Gallery of Greater Victoria, Victoria, B.C.
 Fathers of Confederation Art Gallery and Museum, Charlottetown, P.E.I.

Other important collections of art are housed in arts councils and university galleries. Among university galleries are:—

Fine Arts Gallery of the University of British Columbia, Vancouver, B.C.
 University of Alberta, both Calgary and Edmonton, Alta.
 Norman Mackenzie Art Gallery of the University of Saskatchewan, Regina, Sask.
 Agnes Etherington Art Centre, Queen's University, Kingston, Ont.
 McIntosh Memorial Art Gallery, University of Western Ontario, London, Ont.
 Hart House, and Sigmund Samuel Canadiana Gallery of the University of Toronto, Toronto, Ont.
 Owens Museum of Fine Arts, Mount Allison University, Sackville, N.B.
 St. John's Memorial University Art Gallery, St. John's, Nfld.
 Creative Art Centre of the University of New Brunswick, Fredericton, N.B.
 Sir George Williams University Art Gallery, Montreal, Que.
 Dalhousie University Art Gallery, Halifax, N.S.

Three of the more important galleries connected with arts councils are the St. Catharines and District Arts Council, St. Catharines, Ont., the Glenhyrst Arts Council, Brantford, Ont., and the Art Gallery of the Calgary Allied Arts Centre, Calgary, Alta.

Other Fine Art Organizations.—Among the leading art organizations of national scope, exclusive of museums and art galleries, are:—

Association of Canadian Industrial Designers
 National Design Council
 Canadian Conference of the Arts
 Canadian Council for the Environmental Arts
 Canadian Society for Education through Art
 Canadian Group of Painters
 Canadian Guild of Potters
 Canadian Handicrafts Guild
 Canadian Museums Association
 Canadian Society of Graphic Art
 Canadian Society of Painter-Etchers and Engravers
 Canadian Society of Painters in Water Colour
 Canadian Society of Landscape Architects
 Federation of Canadian Woodcarvers
 Royal Canadian Academy of Arts
 Royal Architectural Institute of Canada
 Sculptors' Society of Canada
 Town Planning Institute of Canada
 Canadian Centre for Films on Art
 Community Planning Association of Canada.

The National Gallery of Canada.—The beginnings of the National Gallery of Canada are associated with the founding of the Royal Canadian Academy of Arts in 1880.

The Marquis of Lorne, then Governor General, had recommended and assisted the founding of the Academy and among the tasks he assigned to that institution was the establishment of a National Gallery at the seat of government. Until 1907 the National Gallery was under the direct control of a Minister of the Crown but in that year, in response to public demand, an Advisory Arts Council consisting of three laymen was appointed by the government to administer grants to the National Gallery. Three years later, the first professional curator was appointed.

In 1913, the National Gallery was incorporated by Act of Parliament (RSC 1952, c. 186) and was placed under the administration of a Board of Trustees appointed by the Governor General in Council; its function was to encourage public interest in the arts and to promote the interests of art throughout the country. Under this management, the Gallery increased its collections and developed into an art institution worthy of international recognition. Today, the Gallery administration comes under the aegis of the Secretary of State. The Board of Trustees, now composed of nine members representing all sections of Canada, meets twice annually.

In 1960, the Gallery entered a new era in its history when the entire national collection and the staff and equipment necessary to its maintenance were transferred to new modern quarters—the Lorne Building in downtown Ottawa—and, for the first time, the Gallery had adequate well-lighted space for hanging its permanent collection and for displaying travelling exhibitions.

The Gallery's collections are of indisputable taste and quality. They have been built up along international lines and give the people of Canada an indication of the origins from which their own tradition is developing. The collection of Canadian art, the most extensive and important in existence, is continually being augmented by the purchase of works from the Biennials of Canadian Art and other sources. The collections include many Old Masters, among which are twelve acquired from the famous Liechtenstein collection; extensive war collections; the Massey collection presented to the Gallery during 1946-50 by the Massey Foundation; a collection of French paintings; prints and drawings; and diploma works of the Royal Canadian Academy. The prints and drawings collection consists of more than 5,000 items.

The services of the Gallery include the operation of a reference library open to the public which contains more than 10,000 volumes and periodicals on the history of art and other related subjects; the operation of an Exhibition Extension Service which prepares and circulates travelling exhibitions, provides educational services such as lectures offered to the general public across Canada, and organizes guided tours for visitors to the Gallery at Ottawa; the production of publications, films, reproductions, didactic exhibitions and other aids to art appreciation; and assistance to Canadian artists participating in important international exhibitions such as the Biennials held in Paris, Venice and São Paulo. The Conservation and Scientific Research Division of the Gallery, which had been handling requests for technical information on works of art from public and private collections across Canada, was in 1964 renamed the National Conservation Research Laboratory. A major function of the Laboratory is the conservation of the national art collection. Studies are conducted also on the effects of environment on works of art, the durability of artists' materials and the scientific identification of artistic techniques. The services of the Laboratory are offered to government departments and other art museums.

Performing Arts Schools.—Music, the most widespread of the performing arts (which also include opera, drama, ballet and dance) is a degree course in a number of universities. The following offer degree courses:—

- Acadia University, Wolfville, N.S.—B.A. with music major, and Mus. B.
- University of Alberta, Calgary and Edmonton, Alta.—B.A. major and Mus. B.
- Brandon College, Brandon, Man.—B. Mus. (Education)
- University of British Columbia, Vancouver, B.C.—B.A. major and B. Mus.
- Laval University, Quebec, Que.—B. Mus.
- University of Manitoba, Winnipeg, Man.—B.A. major and B. Mus.
- University of Montreal, Montreal, Que.—B. Mus. and D. Mus.

McGill University, Montreal, Que.—B. Mus.
 University of Moncton (affiliated college Notre Dame d'Acadie), Moncton, N.B.—B. Mus.
 Mount Allison University, Sackville, N.B.—B.A. major
 Queen's University, Kingston, Ont.—B.A. major
 University of Toronto, Toronto, Ont.—B. Mus., M. Mus. and D. Mus.
 University of Western Ontario, London, Ont.—B.A. major
 St. Francis Xavier University (affiliated College Mount St. Bernard), Antigonish, N.S.—
 B.A. major
 Université Saint-Louis, Edmundston, N.B.—B. Mus.
 University of Saskatchewan, Saskatoon, Sask.—B.A. major, B.Ed. music
 Université de Sherbrooke, Sherbrooke, Que.—B.A. major (affiliated Collège du Sacré-
 Coeur).

Advanced instruction in music is also given at the Conservatoire de Musique et d'Art Dramatique in both Montreal and Quebec, and at Mount Royal College, Calgary, Alta.

Opera may be studied at the Royal Conservatory Opera School of the University of Toronto; advanced students work in close collaboration with the Canadian Opera Company. Opera is also taught at the Conservatoire de Musique et d'Art Dramatique and the Banff School of Fine Arts (summer), Banff, Alta.

A Bachelor degree with specialization in drama may be obtained at Queen's University and the Universities of Alberta, Saskatchewan and British Columbia. Advanced instruction is also given during the summer at the Banff School of Fine Arts.

The University of Toronto has recently announced its first chair of drama, although it does not expect to offer degrees immediately. The University of British Columbia hopes to offer a postgraduate degree in theatre leading to the M.A., classes to begin in the academic year 1965-66. Some graduate courses are offered at the University of Saskatchewan, and the University of Alberta, in the academic year 1964-65, initiated a full degree course in drama.

The National Theatre School of Canada offers complete practical training for talented students. It is bilingual, winter courses being held at Montreal, Que., and summer at Stratford, Ont. Three years are required for the acting course, and two for the technical and production studies. The Manitoba Theatre School at Winnipeg, and the Medhurst Theatre School and the New Play Society Theatre School at Toronto, are also of importance.

The National Ballet School at Toronto is the only residential ballet school in Canada. It offers academic studies together with practical instruction. Professional instruction is also offered by two other major Canadian ballet companies, Les Grands Ballets Canadiens, Montreal, and the Royal Winnipeg Ballet, Winnipeg. The Canadian School of Ballet is located in Kelowna, B.C., and advanced ballet training is given during the summer at the Banff School of Fine Arts.

Section 2.—Museums and Education

Modern museums, in Canada and elsewhere, are breaking away from the old concept of being mere repositories and are assuming an important role as educational and cultural centres. They have an advantage over other agencies of education in that they are able to provide, for study and exhibition, actual, original objects as well as descriptions and pictures of such objects. Canadian museums of history and science offer many educational services to the public through exhibits, guided tours, lectures, and scientific and popular publications. The following museums have staff members who are specifically charged with organizing programs in education and providing extension services:—

Nova Scotia Museum, Halifax, N.S.
 McGill University Museums, Montreal, Que.
 National Museum of Canada, Ottawa, Ont.
 Royal Ontario Museum, Toronto, Ont.
 Saskatchewan Museum of Natural History, Regina, Sask.

Other museums that conduct educational and extension programs using the regular curatorial and administrative staff are:—

The New Brunswick Museum, Saint John, N.B.
Museum of the Province of Quebec, Quebec, Que.
The Manitoba Museum, Winnipeg, Man.
Provincial Museum of Natural History and Anthropology, Victoria, B.C.

Direct work with schools may involve the holding of classes within the museum or visits of museum lecturers, with exhibits, to the schools. More informal are the guided tours for visiting school classes, the lending of specimens, slides, filmstrips or motion picture films to schools, and the training of student-teachers in the educational use of the museum. A number of museums have special programs for children, not directly associated with school work. These include Saturday lectures and film showings, activity groups, nature clubs and field excursions.

For adults, museums offer lectures, film showings, and guided tours, the latter usually available throughout the year. Staff members may be sent to give lectures to service clubs, church groups, parent-teacher associations, and hobby clubs. The latter, such as naturalists' groups, mineral clubs and astronomy societies, may use the museum as their headquarters. Travelling exhibits are prepared for showing at local fairs, historical celebrations and conventions. At least seven Canadian museums have conducted regular radio or television programs and others have made occasional contributions. Some historical museums stage annual events during which the arts, crafts or industries represented by the exhibits are demonstrated to the public.

The National Museum of Canada.*—The National Museum originated in the Geological Survey of Canada and its early history is inseparable from that institution. The first united Parliament of Upper and Lower Canada met in Montreal in 1841. In July of that year the Natural History Society of Montreal and the Literary and Historical Society of Quebec petitioned the Government to carry out a geological survey. As a result, a resolution was passed in the Estimates on Sept. 10 to defray the expenses of a Geological Survey of the Province of Canada.

William E. Logan was appointed the first director of the Geological Survey in 1842. He and his assistant, Alexander Murray, undertook their first field work in 1843, and their collections formed the humble beginnings of the National Museum. Logan was much more than a mere geologist and his interests extended to other branches of natural science. His diaries contain accurate drawings of named plants. He wrote in his annual report for the year 1852-53: "It may be a consideration whether a growing country like Canada could not afford to anticipate what future importance may require in the nature of a national museum and at some future time not far distant, erect an appropriate edifice especially planned for the purpose."

In the meantime, the officers of the Geological Survey continued to collect for the geological museum. In 1856, Elkanah Billings, a palaeontologist, was added to the staff, the first of a number of specialists, and the legislation passed that year to continue the work of the Geological Survey specified the establishment of a geological museum, open to the public, to exhibit specimens, books and instruments.

In 1874, the practice of recording the number of visitors to the Museum was commenced; from May 1874 to April 1875 the number of visitors was 1,017 and by the year ended April 1896 it had reached 31,595. In 1874, the distribution of specimens of minerals, rocks and other natural history objects to schools was started with a donation to the Board of School Teachers of Elora, Ont. The first organized Museum lecture program was undertaken in 1912, with a series of lectures for young people after school; by 1915, Saturday morning lectures for children and evening lectures for adults—both features of the Museum program today—were in operation.

*Prepared by Dr. A. W. Billfield, Director, Natural History Branch, and Dr. R. Glover, Director, Human History Branch, National Museum of Canada, Ottawa.

The scope of the Museum was enlarged in the "Act to make better provision respecting the Geological and Natural History Survey of Canada and for maintenance of the Museum in connection therewith", of Apr. 28, 1877. In that Act the Survey was instructed "to study and report upon the flora and fauna of the Dominion" and "to continue to collect the necessary materials for a Canadian museum of natural history, mineralogy and geology". As early as the Act of 1856, the Geological Survey of Canada had been authorized "from time to time" to distribute publications relative to the Survey. From this authority developed the Museum's celebrated series of scientific bulletins presenting the researches of its staff.

The Act of 1877 established the Geological Survey and the Museum on a continuing basis and permitted the appointment of specialists in connection with natural history research. John Macoun was appointed to establish the division of biology in 1882. He was an eminent botanist who had accompanied the expedition of Sanford Fleming to explore Western Canada in 1871. Macoun's report of 1874 laid the groundwork for the establishment of western Canadian agriculture. He also published a catalogue of Canadian birds. In 1895 under the third Director of the Geological Survey, George M. Dawson, the Museum entered the field of Canadian anthropology.

Prior to 1880, the Museum occupied several buildings in Montreal but that year the Geological Survey moved to Ottawa, occupying the former Clarendon Hotel on Sussex Street. Construction of the Victoria Memorial Museum building was started in 1904 and the Geological Survey moved in in 1910. The Museum began an expanded program of research and exhibition under the direction of R. W. Brock, then Director of the Geological Survey of Canada. Unfortunately this program was curtailed during World War I because the burning of the Parliament Buildings, in 1916, forced Parliament to occupy the Museum building until 1919. Later, expansion of the exhibition halls was handicapped by the Museum sharing its building with the National Gallery of Canada and the Geological Survey of Canada.

However, in 1927, the Governor General in Council gave authority "to designate the museum branch of the Department of Mines as the National Museum of Canada". In 1950, the National Museum of Canada was transferred to the Department of Resources and Development (now the Department of Northern Affairs and National Resources) and in 1964 it was transferred to the Department of the Secretary of State. Since the end of the Second World War, particularly after the appointment of Dr. Frederick J. Alcock as Chief Curator, the Museum has increased its research, education and exhibition staff in order to play a more important role in the cultural life of Canada and perform the tasks properly assigned to the National Museum of Canada. A new National Museum building will be constructed in the heart of Ottawa within the next few years.

The responsibilities of a great museum include the collection, preservation, storage and study of objects related to the various disciplines that fall under its purview. The next step is the undertaking of research by specialists in those fields and the publication of their findings to increase the total knowledge of their subjects. Typically, museums exhibit items from their collections as intrinsically beautiful displays and also to teach the public the scientific background to the subjects. This leads to the educational program of museums which usually includes lectures, workshops, guided tours for children and activity groups, travelling exhibits, loans, library service, and radio and television programs.

The National Museum of Canada is now organized to present all these facets for the enjoyment and education of the people of Canada. It is divided into two Branches—the Human History Branch and the Natural History Branch. The Human History Branch contains the Divisions of Archaeology, Ethnology and Folklore, and History, together with the Canadian War Museum and the National Aviation Museum. The Natural History Branch contains the Divisions of Zoology, the National Herbarium, and Geology and Palaeontology. Services common to both Branches are concerned with exhibitions, educational, technical and administration functions. In 1964-65 the staff

totalled 183, including 40 administrative and professional personnel, 81 technical, operational and service personnel, 32 clerical personnel and 30 casual and prevailing rate employees.

The 1965 field research program in natural history included seven expeditions to various parts of Canada. The work included the conclusion of an investigation of the mammals of the northern Yukon Territory, studies of the avifauna of western Quebec and the eastern slope of the Rocky Mountains in southwestern Alberta, the conclusion of studies of the herpetofauna of the Prairie Provinces and the mollusc fauna of the Hudson Bay drainage. The fishes of the Prince Rupert district were studied, as were the vascular plants of British Columbia. In addition, several taxonomic studies of certain invertebrate animal groups were sponsored at Canadian universities.

The exhibition program in 1964-65 included the completion of a full-sized cougar diorama and a smaller sage grouse group. Work was started on three small bird dioramas—Rocky Mountain alpine birds, Point Pelee spring migrants and a Lake Erie hawk migration—as well as on a full-sized Gatineau beaver group. The West Coast Indian exhibit was renovated and the Iroquois and Plains Indians exhibits were almost completed. Plans were laid for the exhibition halls to be built for the new National Museum Building, scheduled for completion by the end of 1968. The education program continued with weekly lectures for adults, Saturday morning film programs for children, the junior nature club, the school loan collection, children's classes, guided tours, and the Canadian collection of nature photographs. During 1964 the National Museum recorded 271,897 visitors, the Canadian War Museum 206,365, the National Aviation Museum 125,212, and the National Aeronautical Collection at Rockcliffe 22,891.

During the past five years there has been a marked growth in the research carried out by the Human History Branch. Much of this is done under contract by scholars whose work is wholly or partly financed by the Museum, on the understanding that the Museum shall receive their collections and the right to publish their reports. This system has proved valuable in forging links between the National Museum and universities or other museums, and in developing archaeology and ethnology in Canada as well as in enriching the national collection and the Museum's publications. The 1964 field research program in human history included a wide variety of work all across the country by Museum staff or by scholars under contract to the Museum. Among the projects undertaken or assisted by the Archaeology Division were research on the extinct Beothuk Indians of Newfoundland, research on the Debert palaeo-Indian site in Nova Scotia, a survey of the Temiscouata region of Quebec and various studies in Ontario, southern Keewatin and all provinces west of Ontario. The work of the Ethnology Division included studies of the Micmac language spoken in the Maritime Provinces, of songs and oral traditions in British Columbia and of stories connected with Eskimo "legend carvings" at Povungnituk, Que. The Division sponsored a conference at the Museum on Algonkian linguistics which was attended by specialists in this field from all over the Continent. Much work was also done in planning future exhibits for all fields of human history.

The exhibition program in 1963-64 included the completion of the Hall of Canadian Mammals and the renovation of the exhibits of small mammals and the Hall of Birds. The exhibition program continued with weekly lectures for adults, Saturday morning film programs for children, the junior nature study club, the school loan collection, children's classes, guided tours, and the Canadian collection of nature photographs.

Section 3.—The Educational and Cultural Functions of the Canadian Broadcasting Corporation

Many hours of educational and semi-educational programs are broadcast annually by the Canadian Broadcasting Corporation's radio and television facilities. Whether these programs are directed to children or adults, entertainment is combined with information

whenever possible. Spoken-word programs, presented as readings, talks, discussions, documentary programs, dramatizations or in forms combined with music, cover a very wide range of interests.

Programs of an adult education nature are presented frequently by the CBC English Networks, and co-operation in program planning is received from various educational organizations. The CBC is an active participant in the Joint Planning Commission, a body established by the Canadian Association for Adult Education for exchange of information and co-ordination of plans for adult education in Canada.

Citizens' Forum, a series broadcast on radio and television for many years by the CBC, uses discussions, public debates and small seminars to describe important issues of the day. *Citizens' Forum*, or *The Sixties* as it is known on television, is arranged jointly by the Canadian Association for Adult Education and the CBC. Its French counterpart, *Place publique*, is planned in co-operation with l'Association canadienne de l'éducation des adultes. Similar types of broadcasts are prepared specially for rural listeners under *National Farm Radio Forum* which is arranged by the CBC in co-operation with the Canadian Federation of Agriculture and the Canadian Association for Adult Education. This unique educational program involves listening groups who continue the discussion of the topic at the conclusion of the program and funnel their opinions to provincial and national centres for use and distribution. Other daily service and educational programs are provided for farmers. *Country Calendar* and *Country-time* are weekly half-hour television programs of a service and educational nature designed to keep farmers and the general public in tune with agricultural conditions and developments. *Le réveil rural* on radio and *Les travaux et les jours* on television are French-language counterparts of the English farm programs.

In addition to *Citizens' Forum*, the regular television program *CBC Newsmagazine* presents weekly interview and documentary programs. *Caméra '65* on the French television network reports on national and international events and actualities. A series of English television documentaries and dramatizations, entitled *Explorations*, examines questions in the fields of sociology and history. Special programs on the Winter Conference of the Canadian Institute on Public Affairs are also broadcast. This three-day weekend conference examines sociological questions in open meetings and group discussions.

For a little more than a decade, the summer evening sessions of the Couchiching Conference have been broadcast. This week-long conference, organized jointly with the Canadian Institute on Public Affairs, examines Canadian and international affairs in open meetings and group discussions. Other radio programs of an educational nature are *Science Review*, which focuses on important discoveries in the field of the natural sciences and their branches, and *L'Université radiophonique internationale*, a French network series of talks exchanged with other countries on cultural and scientific subjects.

The French network series, *Fémina*, is presented five times a week for women listeners. The French network also broadcasts a number of weekly programs dealing with fine arts, music, literature, theatrical arts, sciences, religion and philosophy under the auspices of Le Service des émissions éducatives et d'affaires publiques.

Take Thirty, a week-day television show for women, has a different 'flavour' on each program—entertainment and interviews of performers; travel topics and features on events in Canada and abroad; cooking, child care and household management; discussions on social problems; and interviews with men and women from the sporting world. The closest radio counterpart of *Take Thirty* is *Trans-Canada Matinée*.

In addition to its school and pre-school broadcasts and other entertaining and informative children's programs on radio and television, the CBC has given time to higher education through co-operation with universities in Toronto, Montreal and Ottawa to broadcast television series locally under the title *Live and Learn*. These programs have been designed to give a general appreciation of academic subjects such as physics, chemistry, literature and psychology. Experimentally, the University of Toronto and the CBC have produced *Beginning Russian*, through which viewers could prepare themselves for university course

credits; other experiments in the production of courses for university credits are in progress in Montreal. CBC Radio's *University of the Air* presents lectures by professors distinguished in their particular fields.

English network radio and television schedules of the CBC have always reflected the many facets of Canadian culture, the basic principles of a national broadcasting service in this country being that a national service must be a complete service for all sections of the population, link all parts of the country, be Canadian in content and character, and serve the two main language groups and the various geographical regions. *The Learning Stage*, which deals with literature, sociology, science, music, labour relations, philosophy, ecology, creative processes, theatre, arts, ethics, political science and French, is broadcast on CJBC Monday to Friday. This is the only English program to be presented on the French-language CBC station in Toronto.

As the centenary of Confederation draws near, the CBC has taken steps to share in celebrating the occasion in 1967. During the past three years, there has been an increase in the number of CBC programs devoted to Canadian ideals and heritage. Special programs have been produced for radio and television covering all phases of Canadian history, bringing, through dramatic documentary productions, the story of Canada to Canadians from coast to coast. Radio and television profiles of Canada's political leaders have given new life to the pages of the country's history and future programming plans include co-operation with the National Film Board in producing many more dramatic documentaries and biographies over the next few years. A start has been made on an oral-history project for which outstanding Canadians in many walks of life are presenting personal reminiscences on audiotape and film for future use.

Section 4.—The Educational and Cultural Functions of the National Film Board

The National Film Board, an agency of the Federal Government, was established by Act of Parliament in 1939 and reconstituted by the National Film Act in 1950. In the years since its establishment, the Board has grown from a supervisory body over Canadian Government motion picture activities to a national documentary film-producing and -distributing organization whose films about Canada are seen wherever people may freely assemble. The Board produces and distributes filmstrips and still photographs on Canadian themes in accordance with its primary function outlined in the Act "to initiate and promote the production and distribution of films in the national interest". Films are produced primarily in the English and French languages and, whenever possible, foreign language versions are prepared to increase the usefulness of Board films in foreign countries.

The 16mm. community film program is based on a nation-wide system of film circuits, film councils and libraries, strongly supported by organizations and individuals engaged in community activities. There are more than 700 national, provincial and community film distribution outlets from which thousands of 16mm. prints are available for public use throughout the country. These prints are acquired for circulation by purchase or by loan from the Board.

A large part of the 16mm. community film audience is reached through classroom showings, indicating progress in the development of audio-visual aid programs in Canadian schools and universities. Another noticeable trend is the more selective use of films by community organizations and groups for particular purposes. This is attributed in part to the availability of Board productions which present series of film studies related to central themes, and to the availability of a broad range of topics which include individual films particularly suited to group objectives and programs.

Films produced by the Board are shown in commercial theatres and on television in Canada and abroad and newsreel features are also issued regularly for theatrical and television purposes. Distribution of theatrical subjects is arranged by contract with commercial distributing organizations.

Series of original films are shown regularly over English-language and French-language television networks in Canada. Individual films from the Board's extensive general library are available to CBC and privately operated stations. Abroad, because of expanding television facilities in many countries, Board films are seen by audiences which could not otherwise be reached.

In addition to commercial distribution through theatres and television in other countries, 16mm. print circulation is carried on through posts of the Departments of External Affairs and Trade and Commerce, through National Film Board territorial offices at London in England, Paris in France, New York, Chicago and San Francisco in the United States, New Delhi in India, and Buenos Aires in Argentina, as well as through libraries operated by various education agencies. Hundreds of prints of National Film Board films are also sold in other countries each year. Exchange agreements are in effect between the Board and government film-producing organizations in other lands; this means that films of various nations are freely exchanged with those of Canada, aiding international understanding.

The National Film Board maintains a library of more than 150,000 still photographs, which are available at nominal cost to magazines, newspapers and other periodicals wishing to present current information about Canada.

Section 5.—The Canada Council

As a result of recommendations made by the Royal Commission on National Development in the Arts, Letters and Sciences, appointed in 1949, the Canada Council was established in 1957 to promote the study and the enjoyment of, and the production of works in the arts, humanities and social sciences. A sum of \$100,000,000 from the public treasury was granted to the Council, one half of which was placed in a University Capital Grants Fund to assist institutions of higher learning to expand their building facilities in the arts, humanities and social sciences, and the remainder set up as an Endowment Fund, the current annual income from which is approximately \$3,150,000. In addition, the Canadian Parliament on Apr. 3, 1965, approved an unconditional grant of \$10,000,000 to the Council to meet the Council's most pressing needs in the arts, the humanities and the social sciences over the next few years. The Council expects to use the \$10,000,000, and the interest earned on it before it is spent, over the next three years to add to the income from its Endowment Fund.

The Council is made up of 19 members appointed by the Governor in Council for terms of three years, plus a chairman and a vice-chairman who are selected for five-year terms. Members are ineligible for reappointment during the 12 months following their second consecutive term on the Council. The organization must meet at least three times a year to consider applications made to it by organizations and individuals across the country. The day-to-day administrative work is carried out by a permanent staff in Ottawa.

University Capital Grants Fund.—A major responsibility of the Council has been toward Canada's institutions of higher education. The Fund, which is now nearing depletion, has enabled the Council to make grants to universities and other institutions of higher learning by way of capital assistance in respect of building projects in connection with the arts, humanities and social sciences, with the following limitations: (1) a grant for any one project may not exceed one half the total expenditure made in respect of that project; (2) in any province the aggregate of the grants made may not exceed an amount that is in the same proportion to the aggregate amount credited to the University Capital Grants Fund as the population of the province (latest census) is to the aggregate population of the provinces in which there is a university or other similar institution of higher learning. By Mar. 31, 1965, almost \$56,250,000 had been authorized for payment by the Council to 81 institutions for a wide variety of buildings. Libraries, classrooms and residences claimed the major share.

Aids to Individuals.—Because in 1957 less than 10 p.c. of the graduate fellowships available in Canada were for studies in the humanities and social sciences, the Canada Council allocated over \$1,000,000 from the income of the Endowment Fund to the establishment of a scholarship and fellowship program to assist in meeting the rapidly growing needs of the future for university teachers. In seven years, almost 3,500 scholars have been aided through awards at the master's, doctorate and postdoctorate level. As a further stimulus to academic pursuits, grants are made to universities to enable them to bring outstanding lecturers to their campuses and travel grants are awarded to permit Canadians to attend international conferences and thus maintain contact with scholars from other countries.

Individual assistance is also given in the arts. In seven years, more than 1,100 scholarships have been awarded to enable singers, dancers, painters, writers and other performing and creative artists to continue their studies or perfect their arts. Other artists had benefited from the Council's program of commissioning grants; such grants enable theatres, orchestras, soloists, art galleries or museums to commission and perform or display original works by Canadian artists.

Aid to Organizations.—A large proportion of the revenue from the Endowment Fund is devoted to a program of assistance to organizations in the arts and letters. Since income from this source is limited, the Council seeks to support the best talent possible, which involves a large investment in some of the major population centres and at the same time covers other areas of the country. This it does by combining grants for excellent service in local or regional areas with awards to enable organizations to travel to more remote parts of the country where the arts are less readily available. It also seeks to ensure local support by insisting that organizations receiving grants find additional revenue from other sources. In the year ended Mar. 31, 1965, the Council gave \$1,434,000 to organizations in the arts, humanities and social sciences. Of this sum, \$1,192,000 went to arts organizations—about \$370,000 to music, \$115,000 for festivals, \$572,000 for opera, theatre and ballet, \$50,000 for the visual arts and \$60,000 for art publications. There were both large and small grants, and groups assisted ranged from the National Ballet of Canada (\$95,000), the Montreal Symphony Orchestra (\$50,000), the Canadian Opera Company (\$75,000) and the Stratford Shakespearean Festival (\$50,000) to Le Théâtre de l'Estoc (\$3,000), the London Public Library and Art Museum (\$1,800) and the periodical *The Fiddlehead* (\$500). These sums covered a variety of purposes, from regular seasonal programs to cross-Canada tours and the commissioning of new works.

Considerably less assistance went to organizations in the humanities and social sciences since the bulk of the scholarship program is directed toward these subjects. Aid was given for special library collections, conferences and publications, and for several academic projects. Altogether, \$242,000 was given for these purposes.

UNESCO.—The Act establishing the Canada Council also provided that the organization should undertake certain functions in relation to the United Nations Educational, Scientific and Cultural Organization. The Council accordingly established a National Commission for UNESCO with 30 members and approximately 58 organizations with "co-operating body status", and also provided the secretariat for the Commission. With the assistance of the National Commission, the Council is responsible for the co-ordination of UNESCO program activities in Canada, for Canadian participation in UNESCO program activities abroad, and for proposals for future UNESCO programs. In all these matters the Council works in close association with the Department of External Affairs and serves as the normal channel of communication between the Department and the Commission. In the year ended Mar. 31, 1965, the Council spent approximately \$100,000 in respect to the National Commission.

Section 6.—Library Services

The National Library.—The National Library of Canada came into existence formally on Jan. 1, 1953 by the proclamation of the National Library Act (RSC 1952, c. 330). On the same date it absorbed the Canadian Bibliographic Centre, which had been engaged in preliminary work and planning since 1950. The Act established a National Library Advisory Council, consisting of the National Librarian, who serves as Chairman, the Parliamentary Librarian, and twelve appointed members, at least one of whom must be from each of the ten provinces.

By 1964, although the Library was still housed in temporary quarters and only a limited purchasing program could be undertaken, the book collection consisted of over 250,000 volumes, supplemented by microcopies of more than 100,000 additional titles. Under the terms of the Copyright Act and the Library's own Book Deposit Regulations, 7,273 titles were received in the year ended Mar. 31, 1965, 5,204 of which were related in some direct way to Canada.

Canadiana, the Library's monthly catalogue of new books and pamphlets relating to Canada, described over 12,000 items in 1964; these included trade and general publications, and official publications of the federal and provincial governments. *Canadiana* has been published since 1950 and is cumulated annually; a cumulated index is in preparation.*

The National Union Catalogue lists 9,500,000 volumes in 224 government, university, public and special libraries in all provinces. New accessions are reported regularly by these libraries, and the Union Catalogue thus forms a continuously up-to-date key to the main book resources of the country. During the year ended Mar. 31, 1964, the Reference Division was asked to locate nearly 30,000 titles and it is noteworthy that copies of 80 p.c. of them were found in Canadian libraries. About one third of the requests were for books in the field of science and technology and 80 p.c. were for books published since 1925.

In addition to *Canadiana*, the National Library publishes bibliographies and the annual cumulation of the *Canadian Index to Periodicals*.

A permanent National Library and Archives Building is under construction on Wellington Street west of the Parliament Buildings in Ottawa; the \$10,000,000 building will be ready for occupancy late in 1966.

The National Science Library.—The National Research Council Library serves as the library for the Council and as the National Science Library of Canada. Plans for developing a central scientific library were proposed as early as 1924 by the Honorary Advisory Council for Scientific and Industrial Research, established in 1916 and now known as the National Research Council (see pp. 390-397). The Library grew slowly until 1928 when the Council's first research laboratories were set up. Since then it has been developed to parallel the growth and expansion of the laboratories and the national interests and activities of the Council with the result that in 1953, under an agreement with the more recently established National Library, the National Research Council Library formally assumed responsibility for national library services in the fields of science and technology. By 1964, the Library's collection, comprising over 560,000 volumes, was growing at the rate of 130,000 items a year and included journals and other serial publications, books, pamphlets and technical and research reports. The bulk of this material is housed in the main Library with smaller and more specialized collections in six branch Libraries.

The resources of the Library are made available by means of an extensive inter-library loan and photocopying service. For purposes of current awareness, the Library issues twice a month its *Recent Additions to the Library*, and a list of *Serial Publications in the Library* is also issued at frequent intervals through the use of data processing equipment.

*A list of 400 selected titles of "Books About Canada", prepared by the National Library, appears in Chapter XXVII of this volume.

Reference and research services include answering requests for scientific information, literature searches and the compilation of abstracts and bibliographies, and the identification and location of obscure publications.

The Canadian Index of Scientific Translations, a card index to the location of completed English translations in Canada and other countries, is maintained by the Library. Translations of scientific articles prepared by the Library's Translations Section are listed and made available in Canada and abroad. A complete English translation of the Russian journal *Problemy Severa (Problems of the North)* is also the responsibility of this Section.

The National Science Library is responsible for the publication of the *Union List of Scientific Serials in Canadian Libraries* and the *Directory of Canadian Scientific and Technical Periodicals*.

Public Libraries.—Municipal, regional and provincial public libraries serve most of the urban, suburban and rural population of Canada. Provincial government agencies are responsible for public library service and delegate this authority to municipal and regional boards, which organize, and largely finance, public library systems for local populations. Provincial agencies provide general supervision, grants and, in some cases, technical services and other assistance.

In addition to books and other printed material for children and adults, they provide films and filmstrips and organize public lectures and other group activities. Public libraries are playing an increasingly important role in the lives of Canadian students of all ages, assisting them to complete school assignments and further their education. Distribution agencies include branches and depots, bookmobiles and other vehicles, boats in Newfoundland and aircraft in the Territories.

In 1963, public libraries in Canada stocked more than 16,609,000 books and the total book circulation was 70,418,478 or 3.7 per capita. They spent \$1.29 per capita on current operating payments and another 16 cents per capita on capital and debenture items, or a total of over \$27,000,000. Local funds accounted for almost 80 p.c. of this amount and provincial grants for 13.2 p.c., the remainder coming from other sources.

1.—Summary Statistics for All Public Libraries, 1963

Province or Territory	Population Served	Libraries	Stocks of Books, Periodicals and Pamphlets	Circulation	Current Operating Payments	Full-Time Staff
	No.	No.	No.	No.	\$	No.
Newfoundland.....	481,000	3	315,082	704,410	196,054	39
Prince Edward Island.....	107,000	2	122,709	282,703	62,409	9
Nova Scotia.....	492,071	14	441,352	2,333,327	811,304	108
New Brunswick.....	212,486	7	217,844	1,243,944	261,322	48
Quebec.....	2,931,848	237	2,575,077	5,222,422	2,580,327	335
Ontario.....	5,719,663	319	8,132,517	38,639,878	12,957,766	1,609
Manitoba.....	526,561	19	562,131	3,051,854	1,076,742	145
Saskatchewan.....	435,146	59	738,023	2,531,121	1,186,199	160
Alberta.....	906,986	150	1,432,140	6,074,890	1,932,993	231
British Columbia.....	1,412,047	78	2,072,389	10,318,929	3,292,429	429
Yukon Territory.....	12,000	1	..	15,000	30,105	3
Totals, 1963.....	13,236,308	889	16,609,264	70,418,478	24,387,650	3,116
Totals, 1962.....	12,996,051	874	15,580,359	65,143,573	21,931,095	2,962

University, College and School Libraries.—Libraries in 73 universities and colleges with enrolments of 100 or more full-time students had more than 9,000,000 volumes in stock in the academic year 1962-63, or 63 volumes per full-time student. Expenditures of these libraries averaged \$80.08 per student and amounted to a total of more than \$8,500,000. The full-time staff of the libraries numbered 1,446, almost one third of whom were professional librarians.

More than 2,000 schools in 281 urban centres of over 10,000 population had centralized school libraries in 1962-63, serving more than 1,213,000 pupils. These libraries contained 6,084,702 volumes, or 5.0 per pupil served, and an average of \$2.45 per pupil was spent on books and other library materials. One half of the libraries employed full-time or part-time librarians; the other libraries reported no staff. Most of the staff were employed in secondary schools.

2.—Book Stocks in the Larger Academic Libraries and Enrolment Served, by Province, Academic Year 1962-63

Province	University and College Libraries				Centralized School Libraries			
	Libraries	Volumes	Enrolment Served	Expenditures per Full-Time Student ¹	Libraries	Volumes	Enrolment Served	Payment for Books per Pupil
	No.	No.	No.	\$	No.	No.	No.	\$
Newfoundland.....	1	103,180	2,151	69.14	13	9,657	6,554	0.88
Prince Edward Island.....	2	31,231	804	23.63	8	22,440	4,459	1.05
Nova Scotia.....	9	601,548	7,495	52.25	60	116,659	32,962	1.04
New Brunswick.....	4	275,400	4,858	62.31	36	86,002	22,947	1.17
Quebec.....	14	2,295,060	33,174	76.55	831	2,066,543	388,941	1.73
Ontario.....	24	3,891,292	42,329	101.09	554	1,882,528	421,232	3.05
Manitoba.....	8	493,799	8,872	60.23	65	267,211	42,573	3.08
Saskatchewan.....	3	289,177	8,042	55.05	65	185,226	27,557	4.43
Alberta.....	4	401,903	11,076	88.82	230	649,692	114,967	3.24
British Columbia.....	4	702,498	17,236	70.75	205	798,744	151,001	2.16
Totals.....	73	9,085,088	136,037	80.08	2,067	6,084,702	1,213,193	2.45

¹ Full-time and equivalent.

Special Libraries.—The latest figures available for special libraries are for 1961. In that year 580 government and private special libraries contained more than 5,600,000 volumes as well as large stocks of pamphlets, periodicals, microcards, microfilms and other material. Most of the special libraries were located in Ontario (250), Quebec (150), and British Columbia (52).

Library Education.—Five Canadian universities give degree courses in library science—McGill, Montreal, Ottawa, Toronto and British Columbia. In 1964, there were 290 bachelor of library science graduates, about 70 p.c. of whom were women. Almost 42 p.c. secured positions in university libraries, about 25 p.c. in public libraries, over 7 p.c. in school libraries, and the remainder in special libraries and elsewhere. The median beginning salary of the graduates was \$5,247.

3.—Library School Graduates, 1964

Library School at—	Graduates		Destinations				Median Beginning Salary
	Male	Female	Public Library	University Library	School Library	Other and Unknown	
	No.	No.	No.	No.	No.	No.	\$
McGill University.....	9	42	16	23	3	9	5,150
University of Montreal.....	14	11	3	15	2	5	5,263
University of Ottawa.....	16	17	2	11	3	17	5,050
University of Toronto.....	14	73	32	34	6	15	5,278
University of British Columbia.....	15	29	8	20	4	12	5,125
Totals¹.....	68	172	61	103	18	53	5,247

¹ In addition, there were 50 graduates who did not report detailed information.

4.—Median Salaries of Librarians in Professional Positions, 1963

Position	Public Libraries in Centres of over 25,000 Population	Regional and Co-operative Public Libraries	Provincial Public Library Services	University and College Libraries (1962-63)	Total Professional Librarians
	\$	\$	\$	\$	No.
Chief Librarian.....	7,792	6,550	8,500	8,688	152
Assistant Chief Librarian.....	8,417	—	—	8,312	30
Division, Department or Branch Head.	6,990	6,562	7,750	6,869	305
General Librarian.....	5,583	5,133	6,350	5,232	652

CHAPTER VIII.—SCIENTIFIC AND INDUSTRIAL RESEARCH*

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

The characteristic problems of this country, particularly its large area, its small population and its unique industrial structure, have led to a typically Canadian organization of research. Early research was, of course, related to the primary industries. Geological mapping and agricultural research were almost the only areas of activity until the beginning of the present century. In 1898 research in the field of fisheries was assigned to an independent honorary board which has continued to the present as the Fisheries Research Board. In 1916 the Federal Government set up the National Research Council; its early duties were to encourage and stimulate research in the universities through grants and scholarships and it entered active research only with the establishment of its own laboratory system in the late 1920's and early 1930's. Great expansion in scientific research took place during the War when the National Research Council assumed the responsibility for research for the three Armed Services including the development of atomic energy. At the end of the War, the Council returned to its previous activities—the promotion of research in the universities and research for secondary industry. The Defence Research Board was established in the Department of National Defence with responsibility for military research (see Chapter XXVI). In 1952, the Crown corporation, Atomic Energy of Canada Limited, was established to proceed with the development of atomic energy in Canada, and certain other Crown corporations such as Eldorado Mining and Refining Limited, Polymer Corporation Limited and Canada's largest national utility, the Canadian National Railways, developed important research programs.

Industrial research has been slow to develop in Canada. While certain large industries, particularly the chemical industry and pulp and paper industry, had a long history of successful research effort, the primary resource base of other industries was not conducive to the establishment of research laboratories. Also, the prevalence of foreign-owned manufacturing companies exerted considerable influence on the development of industrial research. Canadian subsidiaries of foreign companies had ready access to the research and development results of their parent companies and Canadian companies had little incentive

* A Selection of Canadian Achievements in Science and Technology, 1800-1964, compiled by Dr. John R. Kohr of the National Research Council, Ottawa, appears in the 1965 Canada Year Book, pp. 398-401. This is available in reprint form from the Dominion Bureau of Statistics, Ottawa.

to establish their own laboratories or to develop products specifically for the Canadian market. However, Canadian industry in general is now greatly extending research facilities and becoming much more aware of the advantages to be gained therefrom.

There are no large profit-making research institutes in Canada although several laboratories are available to undertake consulting, testing and experimental work in technological and engineering fields. Nor are there many non-profit research institutes in operation. The Ontario Research Foundation is the largest of this type in Canada. It is a self-governing research institute that engages in research and development on contract for manufacturers, departments of government and on its own account. Although initially financed by an endowment fund subscribed partly from industry and partly from government, its current revenue is derived largely from sponsored research. The British Columbia Research Council operates in a similar manner. Co-operative research through research associations is likewise a minor factor in Canadian research activity. The Pulp and Paper Research Institute of Canada (see Forestry Chapter) is the only example of a major research association. This Institute's operating funds are provided by industry but, from the outset, the Institute has represented a co-operative partnership between the Federal Government, McGill University and the pulp and paper industry. For many years the Government provided a grant which was replaced in 1956 by the construction and equipping of a laboratory for the use of the Institute. The Federal Government now has under way, at a cost of \$3,000,000, an extension to these laboratory facilities to meet the increasing demands of the pulp and paper industry for more advanced and diversified research essential to the maintenance of its competitive position in world markets.

Thus, there are three main sectors of research in Canada—government research, university research and research in industry. These three elements are covered in some detail in the following Sections and Subsections.

Mechanism for the Federal Science Policy.—In the federal sphere, the ultimate authority for policy on science resides in the Cabinet. To exercise this authority there was established by the National Research Council Act (RSC 1952, c. 239, as amended) a Cabinet committee known as the Committee of the Privy Council on Scientific and Industrial Research. This Committee comprises those Cabinet Ministers having departments with scientific responsibilities and certain other Ministers who have an indirect concern with scientific affairs. These federal departments and agencies advise the Privy Council Committee on the scientific aspects of their own departmental responsibilities and on the organization and support of research required for their own purposes. The National Research Council, on the other hand, advises the Committee on general science policy, particularly on research in the universities, in industry and in fields not specifically the responsibility of the departments or agencies.

In 1949 the Privy Council Committee broadened the structure of its advisory mechanism by the addition of an advisory body of senior officials to which it might turn for joint advice on the formulation and conduct of government scientific policies. Thus the Committee has now two advisory bodies—the National Research Council and the Advisory Panel. The Council, being composed of non-government scientists representing the universities, industry and labour, is admirably suited to keep the Committee informed of the effect of government policy on the scientific activities of the country at large and to advise on the actions necessary to maintain the universities and independent research institutes in a healthy condition. The Panel, on the other hand, being composed of senior government officials, is the appropriate body to consider government policy affecting departmental activities and to advise the Committee on government action. The President of the National Research Council, as chairman of both bodies, provides for co-ordination and the proper division of responsibilities.

In 1964 Canada moved toward integration and stimulus of research with the creation of a Scientific Secretariat in the Office of the Prime Minister. The Secretariat was established as a result of the recommendations of the Royal Commission on Government Organization and those of Dr. C. J. Mackenzie, former President of the National Research

Council. The first director and organizer of the new Secretariat is Dr. F. A. Forward, a former head of the department of metallurgy at the University of British Columbia. The Secretariat has the task of assembling, digesting and analysing information related to the Government's scientific and technological activities, including their interrelationships with university, industrial and provincial scientific establishments.

Section 1.—The National Research Council*

History and Organization.—Organized research in Canada on a national basis dates from 1916 when the Government of Canada established the Honorary Advisory Council for Scientific and Industrial Research—now known by the short title "National Research Council". The early Council provided for the planning and integration of research work, organization of co-operative studies, postgraduate training of research workers, and prosecution of research through grants to university professors. This promotion and encouragement of research formed the basis of the Council's work from 1916 to 1924.

The creation of a central research institute, to carry on research in pure science in relation to standards of measurement, quality and composition of material, and in science applied to the industries of Canada, had been urged as early as 1918. A special committee of Parliament endorsed the proposal and in 1924 the Research Council Act was revised to include national research laboratories. Temporary quarters were secured and research on magnesian refractories for steel furnaces was carried out so successfully that a wartime industry, established during World War I, was re-established on a large scale. As a result of this achievement, the Government, in 1929-30, provided funds for new research facilities.

The National Research Building on Sussex Drive, Ottawa, was opened in 1932 and in 1939 construction was begun of an aerodynamics building on a 130-acre site on the Montreal Road, just east of the city. This site now comprises some 400 acres and houses most of the Council's laboratories. A Prairie Regional Laboratory built on the campus of the University of Saskatchewan has been in operation since June 1948, and an Atlantic Regional Laboratory on the campus of Dalhousie University in Halifax, N.S., was opened in June 1952.

Under the terms of the Research Council Act, the National Research Council has charge of all matters affecting scientific and industrial research in Canada that may be assigned to it by the Committee of the Privy Council on Scientific and Industrial Research. In discharging these responsibilities, the Council may undertake, assist or promote research. Its duties include the utilization of Canada's natural resources; the improvement of industrial processes and methods; the discovery of processes and methods likely to expand existing industries or to develop new ones; the utilization of industrial wastes; investigation and determination of physical standards, methods of measurement, and fundamental properties of matter; the standardization and certification of scientific and technical apparatus used by government and industry; the determination of standards of quality for materials used in public works and government supplies; investigation and standardization, at the request of industry, of industrial materials or products; and research intended to improve conditions in agriculture. The Council also has the duty of advising the Privy Council Committee on questions of scientific and technological methods affecting the expansion of Canadian industries or the utilization of the country's natural resources. As a service to Canadian science, the Council maintains scientific liaison offices in Ottawa, London, Washington and Paris. The liaison officers abroad also serve as scientific attachés in the Canadian diplomatic missions. The National Research Council Library, with holdings of more than 500,000 volumes in science and technology (including 12,000 journals and other serials), acts as the National Science Library of Canada (see also p. 384).

* Revised by Joan Powers, Public Relations Office, National Research Council, Ottawa.

The Council's laboratories are organized in ten divisions and two regional laboratories, each with its own director. Six divisions are engaged in applied and fundamental studies in the natural sciences—biosciences, applied and pure chemistry, applied and pure physics and radiation biology. Four others are devoted chiefly to engineering work—building research, mechanical engineering, radio and electrical engineering, and the National Aeronautical Establishment. The two regional laboratories carry out research related to the resources of the prairie and Atlantic regions.

A Medical Research Council, fully responsible for the support of medical research but functioning under the general administration of the National Research Council, was established in November 1960 (see p. 295).

The National Research Council consists of the President, two Vice-Presidents (Scientific), one Vice-President (Administration) and 17 other members, each of the latter group being appointed for a term of three years and chosen to represent industry, labour, and research in science and engineering. Many of the members are drawn from Canadian universities. The Council reports to Parliament through the Committee of the Privy Council on Scientific and Industrial Research.

The Council's 1965-66 budget, excluding the provision for the activities of the Medical Research Council, is about \$60,000,000, approximately \$22,000,000 of which is required for foundation work—scholarships and research grants in science and engineering. The remainder is used to operate the laboratories and to provide for the Council's industrial research assistance program. Of the Council's 2,629 employees, some 749 are scientists and engineers.

Links with Industry.—The application of science to Canadian industry has always been one of the major concerns of the National Research Council. Since 1917, representatives of industry, government and the universities have co-operated, through NRC Associate Committees, in solving pressing industrial and economic problems. There is a constant flow of personnel and information between NRC laboratories and those of industry, and roughly 90 p.c. of the Council's own effort involves applied research intended for industrial use. Contract research on specific projects and a wide variety of testing and standardization work are undertaken. Inventions from NRC laboratories are carried through the patent stage, then made available for manufacture through Canadian Patents and Development Limited (see p. 133).

One of the Council's most important activities is its Technical Information Service. This consists of field engineers who visit manufacturing establishments, and a staff of trained researchers in Ottawa who use the technical literature available through the Council's Library. All inquiries are handled but the Service is particularly interested in helping small firms with no research or information facilities. Free advice is given on all aspects of materials and processing, equipment, plant design and packaging and on such topics as wage incentives and inventory control.

Direct financial assistance for research performed by Canadian industry was begun by the Council during 1962. Under this arrangement the Council makes grants supporting long-term applied research and development work proposed and carried out by industry. Aid is given on a shared-cost basis, with industry supplying at least half the funds for any one project. Companies of all sizes, representing a wide range of industrial activity, are eligible for assistance and the companies retain all rights arising from the work. In 1964-65, at a cost of \$2,200,000, the Council supported 121 research projects carried out by 78 Canadian firms. This work gave rise, also, to more than 500 new research positions.

Foundation Aspects.—University research in science and engineering has been supported by the Council since its inception in 1916. This aid has been of considerable help to the universities in building up the excellent graduate schools that now exist in Canada. Awards to individuals make up most of the university support program. Included are research grants to university staff used for employing assistants and purchasing

equipment and supplies, postgraduate scholarships, and post-doctorate fellowships. Approximately 1,700 research grants and 995 scholarships and fellowships were awarded in the year ended Mar. 31, 1965, at a cost of \$17,800,000.

General promotion and encouragement of university research—the remainder of the program—includes publication of seven Canadian journals of research; contributions to scientific organizations and functions, Canadian membership in international scientific unions, and the administrative costs of the program. Expenditures for these activities in 1964-65 totalled \$1,300,000. An annual *Report on University Support* describes the foundation program in detail.

In 1948 the Council instituted a program of post-doctorate fellowships, open to Canadians and to the nationals of all other countries. Originally these were tenable in the Council's own laboratories but the training and experience brought to the work by the young scientists proved so stimulating that the program has been gradually expanded. Fellowships are now tenable at Canadian universities (these are considered part of the university support program), in the laboratories of Atomic Energy of Canada Limited, and in the federal Departments of Agriculture, Forestry, Mines and Technical Surveys, and National Health and Welfare. In early 1965 more than 275 of these awards were being held, mostly in chemistry, physics and biology.

Biosciences.—This Division's program covers practical problems related to the national economy and fundamental studies in microbiology, biochemistry and biophysics as a basis for future application in agriculture, medicine and industry.

Apparatus and techniques for preparing, preserving and storing food make up a large part of the work, with particular attention in recent years to food freezing, cold storage and refrigerated transport. Recent studies have involved further tests on a process developed in the Division and now widely used in industry for the immersion freezing of poultry, quality loss in poultry meat during freezing and refrigerated storage, and an improved cooling system for frozen food trucks. The physical and chemical reactions preventing coagulation in evaporated milk during sterilization were also investigated. Micro-organisms related to the preparation and preservation of food are studied, particularly those found in salted foods and in cheese, and those that grow at low temperatures. A national culture collection of about 3,000 yeasts, bacteria and fungi is maintained.

Considerable effort is devoted, also, to questions of animal and plant physiology. Studies of the mechanisms by which mammals, birds and man adapt to cold have provided important basic information on cell, muscle and metabolic activity, and also serve to explain practical problems such as the high death rate of newly born caribou. Fundamental plant processes such as translocation are investigated, and an exhaustive study is being carried out on strains of blue-green algae believed responsible for cattle deaths. Plant fibres such as cellulose—the skeletal material of plants—and the structure and function of plant cells are also examined.

Other studies involve fermentation mechanisms and enzymology, and the structures of proteins, carbohydrates and fats. One group, among other projects, is engaged in long-term statistical studies of protein variability in wheat and wheat exports. The work has been expanded recently to include the effects of weather factors on protein content.

Radiation Biology.—The effect of radiation on living things, including people, will be the subject of research in a new National Research Council division in process of organization—the Division of Radiation Biology. The Division will be housed in a new building to be erected on NRC land on the south side of the Montreal Road in Ottawa in close proximity to the buildings housing the major applied Divisions of the Council. It is expected to be ready for occupancy in 1967 and recruiting of scientific staff has begun. A variety of types of radiation will be used, including ultra-violet light, gamma rays, X-rays, electrons and fast neutrons. The physical, chemical, functional and statistical changes brought about by irradiation of pure chemicals, biochemicals (enzymes and macromolecules), cells, tissues, micro-organisms, plants, animals and human or animal

populations will be investigated. Studies will also be made of radiations arising within biological materials as well as those originating outside. Where possible, observations will be made of the effects of radiations delivered at widely differing dose rates. The opening of the new Division will not result in any reduction in work at the Chalk River Nuclear Laboratories, but will expand the Canadian work in this field.

Applied Chemistry.—The Division of Applied Chemistry is concerned with supplying new scientific information for the development of Canada's natural resources and chemical industries. Although formerly much of the work involved the solving of immediate specific problems, a larger part of the Division's effort is now being devoted to more basic studies. This avoids conflict with industrial laboratories and consultants and, in addition to providing fundamental information, often produces practical results. For instance, a long-term investigation on the contacting of fluids and solids—an operation vital to many chemical engineering procedures—has resulted in a successful commercial operation for drying grain. The same method can be extended easily to chemical reactions and to removing liquids from other materials.

Another long-term project of considerable industrial potential has concerned the factors responsible for the stability, or the destruction, of suspensions of solids in liquids and a method was devised for easily separating almost any suspended solid from the liquid surrounding it. This work was expanded recently to include the separation of dissolved solids. It has been shown that virtually all dissolved salts can be removed from water by filtration through an appropriate medium, and tests with other materials are in progress. Then, too, the study of chemical reactions at very high temperatures—carried on over the past several years—has resulted in the successful preparation of a stable polymer that could not be produced by conventional means.

The twelve sections of the Division are: analytical chemistry, applied physical chemistry, chemical engineering, colloid chemistry, high polymer chemistry, high pressure, kinetics and catalysis, metallic corrosion and oxidation, metallurgical chemistry, physical organic chemistry, rubber, and textile chemistry. Much of the work falls under the general headings of petroleum or corrosion chemistry, in that several sections work on topics related to one of these fields.

Pure Chemistry.—The Division of Pure Chemistry is organized around a nucleus of outstanding Canadian chemists who direct about 50 young post-doctorate fellows from all over the world. The work consists of long-term fundamental investigations in physical and organic chemistry.

The work in organic chemistry includes investigation of the structures of alkaloids, studies of the infrared spectra of steroids, and the synthesis of porphyrins and of compounds labelled with isotopes. Other sections deal with chemical kinetics and photochemistry, the study of the ionization potentials of free radicals by mass spectrometry, Raman and infrared vibrational spectroscopy, organic crystal semi-conductors, and the application of high resolution proton magnetic resonance techniques to the study of hydrogen bonding and other molecular interactions. Still others study certain aspects of surface chemistry such as the thermal properties of simple solids and imperfections in the bulk and the surface of alkali halide crystals, the heats of micellization by microcalorimetry, and the thermodynamics and stress-strain relationships associated with the absorption of fluids by active carbons. There is also a small group interested in the chemistry of fats and oils.

Applied Physics.—The work in applied physics is divided between research projects likely to be of practical value and the continual development of the fundamental standards on which measurements generally are based. All the fundamental physical standards for Canada are housed and serviced in the Applied Physics Division, which has primary standards equal to any in the world in the fields of mass, length, time, electricity, temperature and radiation. The sections of the Division are: acoustics, diffraction optics, electricity, heat and solid state physics, instrumental optics, interferometry, mechanics,

photogrammetric research, radiation optics, and X-rays and nuclear radiations. Industrial problems receive considerable attention, particularly calibration work and industrial noise abatement.

Examples of specific projects under way include a study of physiological noise and its relationship with the threshold of hearing, researches directed toward improving the resolving power of optical systems, the design of a hydrogen maser offering potential as a frequency standard for defining time, measurements on various metals and ceramics aimed at elucidating the mechanism of heat transfer at high temperatures, the establishment of an international standard neutron source, and investigation and application of the very intense and very monochromatic radiation emitted by gas lasers. Several of the Division's developments are being produced commercially; among these are noise-excluding ear defenders, a revolutionary analytical plotter for making maps from aerial photographs (available in two models—one for military and the other for civilian use), six- and five-figure potentiometers, and a precision direct reading thermometer bridge.

Pure Physics.—Investigations are under way on cosmic rays and high-energy particle physics, low-temperature and solid-state physics, plasma physics, spectroscopy, theoretical physics and X-ray diffraction. The work is on fundamental problems that do not have immediate application but advance the frontiers of knowledge and supply the basis for further progress in the applied fields. Important advances in the study of cosmic rays and energetic particles have been made by means of a specially designed instrument package operating aboard the Canadian earth satellite *Alouette*. The package is sending back vital new information about the Van Allen radiation belts and about the artificial belts created by atomic explosions. (See pp. 402-404.)

The low-temperature and solid-state group studies the electrical, thermal and mechanical properties of metals and semi-conductors especially at very low temperatures. The plasma physics group, established in 1963, is making basic contributions to a field which may, in the long run, prove to be of importance in problems of controlled nuclear fusion. In the spectroscopy group, the structures of atoms and molecules are investigated by means of their microwave, visible and ultra-violet spectra, and considerable work has been done on optical masers. The theoretical physics group is at present concerned mainly with theoretical problems basic to the field of plasma physics.

The X-ray diffraction laboratory undertakes fundamental work in molecular and crystal structure and identification problems for government laboratories. X-ray diffraction methods are extremely valuable for identification purposes as they are non-destructive and require only very small amounts of material. Two of the major projects concern narcotics and vanadium minerals.

Building Research.—Technical improvements in housing are the primary concern of this Division. The research program therefore covers all aspects of housing design, building materials and components, and studies in soil, snow and ice mechanics. Regional stations engaged in research and information are maintained in Halifax, Saskatoon, Vancouver and Norman Wells.

Examples of Division projects are the behaviour of cement aggregates and lightweight concretes; the materials and techniques of masonry construction and plastering; atmospheric corrosion of metals; paint and acoustics research; and examination of the performance of walls, windows, chimneys and domestic heating systems. Other studies involve humidity in buildings, air conditioning design data, snow and wind loads on structures, the properties of various soil types including permafrost and muskeg, and the effects on buildings of ground vibrations caused by earthquakes. A unique fire research laboratory provides facilities for all types of fire resistance, fire prevention and fire fighting tests. As the Division concentrates on building problems peculiar to Canada, much of the work concerns the performance of buildings and building materials in cold weather. In this connection, double-glazed windows and lightweight metal and glass curtain walls,

used increasingly in modern buildings, have been examined. Special studies have been made to improve winter building techniques and there is a section devoted to problems of building in the Far North.

Many results of the Division's research are expressed in the National Building Code, an advisory document of building standards now used by municipalities accounting for half the total urban population of Canada. The Division also provides the secretariat and considerable technical assistance to the Advisory Committee that produces the Code.

Mechanical Engineering.—This Division works mainly in the fields of mechanics, hydrodynamics (hydraulic engineering and naval architecture) and thermodynamics. Extensive testing and specification work is undertaken for a variety of industries and for government departments. Much of the work consists of continuing projects related to land, sea and air transportation.

The mechanics activities include mathematical analysis and computation, the development of instruments and servomechanisms, and research on mechanical devices such as gears. One group, working in the field of bio-medical engineering in collaboration with surgeons, has devised a tool for end-to-end joining of blood vessels by a simple stapling operation.

In hydraulics, a number of investigations and models have been made for improving Canadian harbours. A new kind of breakwater has been developed which absorbs waves rather than reflecting them, and a breakwater utilizing this principle has been constructed at Baie Comeau. A promising scheme has also been developed for reducing silt accumulation in harbours by wave energy. The ship laboratory has continued its studies on propeller, rudder and hull design and performance.

Railway work is devoted mainly to locomotives and the riding qualities and mechanical behaviour of freight cars. Improved braking systems and cheaper fuels, lubricants and injectors have been developed. A long-term study is being made of the possible use of gas turbines in locomotives. The application of gas turbines to aircraft taking off and landing vertically is also being explored, together with the thermodynamic, aerodynamic and control problems that this type of aircraft involves. Considerable research is being done on the behaviour of lubricants at high pressures, and that of gases at extremely high temperatures.

National Aeronautical Establishment.—The National Aeronautical Establishment is designed to meet the aeronautical research needs of military and civil aviation, to co-operate with the Canadian aircraft industry, and to carry out its own research program. Its studies therefore centre around problems of aerodynamics, aircraft structures and materials, and flight mechanics.

Aerodynamics research from low speeds up to about $4\frac{1}{2}$ times the speed of sound is carried out in the Establishment's wind tunnels. Considerable attention is being given at present to low-speed problems of vertical and short take-off aircraft. Other studies include work on the aerodynamic characteristics of high-thrust propellers, on wings with submerged fans and on wings immersed in powerful slip-streams. The research on structures and materials involves investigation of aircraft accidents, the theory of structures, fatigue and fracture, flight loads statistics and aircraft hydraulics. The flight mechanics program covers research on flight safety and flying stability and control, the development of a crash position indicator for locating crashed aircraft, atmospheric physics, anti-submarine magnetometry, and the avoidance of aircraft collisions.

A growing and highly diversified program of assistance to smaller industries is developing. Most of the work relates to product development, product improvement, or testing.

Radio and Electrical Engineering.—The work of this Division includes engineering problems of interest to Canadian industry and fundamental research in electrical science. The Division co-operates with the Armed Services and associated industries in designing, producing and evaluating new equipment.

Engineering problems include long-range transmission of high-voltage direct current, corona studies, electronic aids to navigation, current and potential transformer investigations, rocket telemetry, and the development of electronic medical instruments and operating-room facilities. The Division maintains the best-equipped antenna laboratory in Canada and provides considerable assistance to Canadian industry in the development and manufacture of new antennas and radomes. Examples of recent developments by the Division are a compact transistorized marine radar for use by pleasure craft and fishing vessels, an underwater crash position indicator for locating submerged aircraft, an area display electrocardiograph showing the time variation of heart voltage between 70 points on the body, and a creative tape recorder much in demand by electronic music studios. A highly mobile counter-mortar radar designed by the Division went into commercial production in 1961.

Fundamental studies are carried out in the fields of radio astronomy, upper atmosphere research, surface physics, and solid state physics. The Division is currently developing a radio observatory in Algonquin Park which will feature a radiotelescope having a parabolic reflector 150 feet in diameter. This apparatus is expected to be fully operational in the spring of 1966. A radiotelescope 33 feet in diameter is now in operation at the site.

Atlantic Regional Laboratory.—The Atlantic Regional Laboratory is engaged in practical and fundamental studies related to the resources and industries of the Atlantic Provinces. The work follows three general lines: chemical reactions at high temperatures; structures and reactions of naturally occurring organic compounds; and the biochemistry and physiology of fungi, marine algae, mosses, lichens, ferns and higher plants. Examples of specific projects are studies of the nucleic acids of seaweeds, a botanical survey of the peat bogs of Newfoundland and Labrador, and the determination of the molecular structure of several new substances isolated from marine plants. A number of new compounds have also been isolated from land plants, and these are being investigated. The high temperature studies are aimed at providing basic information of use in steel-making and related industries.

A recent development of considerable significance is the establishment of a close working relationship with Dalhousie University at Halifax. Under the new arrangement, students acceptable to the University's Faculty of Graduate Studies may now carry out research in the Atlantic Regional Laboratory, directed by Laboratory staff members holding unpaid appointments in the Faculty. The immediate aim of the scheme is to expand the facilities for graduate studies in the Atlantic region. In the long run, the objective is to help create a strong scientific background conducive to large-scale development by industry.

Prairie Regional Laboratory.—One of the chief aims of the Prairie Regional Laboratory is to develop wider uses for crops grown on the prairies. This is achieved by determining potential uses of crops now in production and by encouraging the production of new crops to meet specific needs. Research is therefore carried out on the properties and reactions of plant components, and on the biological, chemical and engineering processes for turning them into other compounds. The development of oil-seed crops as alternatives to seed crops has received considerable attention.

For some time, the Laboratory has studied major plant constituents such as carbohydrates, protein, starch, lignin and fibres. An example of this work is the definition of the chemical structure of several polysaccharides found in cereal grains and important in baking, milling and fermentation technology. Attention is also being given to minor plant constituents—such as phenols, flavonoids and terpenes, which are known to have fungicidal and germicidal properties. A laboratory has been set up to systematically study extractives from local plants and shrubs.

The engineering and process development group is engaged in research on continuous fermentation processes, pulping processes on wood and straw fibres, and the effects of

glyceride structure of fats and oils on the quality of margarines and shortenings. Large-scale processing and pilot-plant-scale operations are carried out. There is also a group working in the field of mycology, which is concerned with the production of new chemicals, antibiotics, alkaloids and amino acids.

Section 2.—Research in the Atomic Energy Field*

Recent Developments and Prospects.—The first major fruits of Canadian atomic energy research now appear close at hand. The Hydro-Electric Power Commission of Ontario is constructing a multi-unit nuclear electric generating station at Pickering near Toronto. Each unit will generate 500 megawatts (1 megawatt = 1,000 kilowatts) and beginning in 1970 it is planned to bring into operation the first four units at yearly intervals. Estimates indicate that the power will be generated for less than 4 mill/kwh. (0.4 cents per kilowatt hour) and will be competitive with that from other available types of thermal generating station. The Quebec Hydro-Electric Commission is also entering the nuclear field with a 250-megawatt prototype nuclear generating station of advanced design. Like the earlier CANDU (Canadian Deuterium Uranium) reactors, the design employs natural uranium as the fuel and heavy water as the moderator but the heat will be carried from the fuel by boiling ordinary water instead of by heavy water at a pressure sufficient to prevent boiling. The design is distinguished by the title CANDU-BLW-250 (Canadian Deuterium Uranium-Boiling Light Water-250 megawatts).

The first nuclear power demonstration (NPD) reactor, CANDU-PHW-20 (Pressurized Heavy Water-20 megawatts) at Rolphton, Ont., gave very good service in 1964, achieving a capacity factor of 82 p.c., exceeding the target of 80 p.c. Moreover, in December 1964 and January 1965, when the target was 96 p.c., a capacity factor of 98 p.c. was achieved. Construction of the 200-megawatt station at Douglas Point on Lake Huron should be completed in 1965.

Canadian heavy water power reactors are also under construction in India and Pakistan. To meet the prospective large demand for heavy water, two production plants are being constructed in Canada by private industries and the purchase of a total of 2,500 tons of heavy water has been underwritten by the Federal Government.

Although nuclear power is expected to restore the world market for uranium, the major build-up is expected in the 1970's. The high energy yield from the fission of uranium is the key to economic nuclear power. The yield is so high that the cost of the raw uranium is a very minor component of the cost of electric power. It is about 5 p.c. of the total and may be contrasted with 50 p.c. or more paid for coal in some large conventional generating stations. The largest component in the over-all economy of nuclear power systems is reactor plant construction and a minor (10 p.c. to 15 p.c.) component is fuel fabrication.

In the past, the major atomic energy activity in Canada was uranium mining and refining for export in support of military uses. Circumstances have changed so greatly that the Government has announced a policy of no further exports for nuclear weapons but encourages export for peaceful purposes such as nuclear power.

It is also significant that since lower unit power costs result from larger stations, there is a new incentive for large utilities to export power from their systems and to interconnect centres of load by high voltage transmission even over long distances. All users of electricity also benefit from the new trend to lower rates the greater the demand.

The Canadian designs of nuclear power reactor appear capable of adapting to the largest capacities desired and of taking advantage of changes in the market value of natural uranium and of reprocessed fuel to reach even lower power costs as the scale of operations increases.

* Prepared by Dr. W. B. Lewis, Senior Vice-President (Science), Atomic Energy of Canada Limited, Chalk River, Ont.

Organizational Arrangements.—Three Federal Government organizations have the basic responsibilities for atomic energy in Canada: (1) the Atomic Energy Control Board, responsible for all regulatory matters concerning work in the nuclear field; (2) Eldorado Mining and Refining Limited, with a double function as a producer of uranium and as the Government's agent for the purchase of uranium from private mining companies; and (3) Atomic Energy of Canada Limited, concerned with nuclear research and development, the design and construction of reactors for nuclear power, and the production of radioactive isotopes and associated equipment, such as cobalt-60 Beam Therapy units for the treatment of cancer, and large installations for the sterilization of medical supplies and other uses.

The Atomic Energy Control Board does not itself conduct research but it gives substantial grants to universities to further independent studies and to provide the equipment without which the universities would find it difficult to train the nuclear research workers of tomorrow. The National Research Council also has made grants in the atomic energy field. In 1964-65 the total of these grants was \$2,450,000.

Eldorado operates research and development laboratories in Ottawa and uses them to support its uranium mining and processing at Beaverlodge in northern Saskatchewan and its refining plant at Port Hope, Ont. Eldorado co-operates with the Department of Mines and Technical Surveys, which carries out background research on the production and use of uranium.

Atomic Energy of Canada Limited (AECL) has an eleven-man Board of Directors, including individuals from private industry, public and private power companies and the universities. The company's major plant, the Chalk River Nuclear Laboratories, is near Chalk River, Ont., and a second plant, the Whiteshell Nuclear Research Establishment, is near Pinawa in Manitoba. The company's Head Office and AECL Commercial Products are in Ottawa. AECL Power Projects in Toronto directs the engineering of power reactors and nuclear generating stations and operates as consulting nuclear engineers. The design and construction of NPD, the demonstration plant, was carried out by collaboration between AECL, the Canadian General Electric Company Limited and Ontario Hydro. Power Projects, with the assistance of Ontario Hydro, designed and constructed the Douglas Point station. By agreement, Ontario Hydro will purchase the plant when it is in satisfactory operation. The large units of the Pickering station are being built by Ontario Hydro using Power Projects as consulting nuclear engineers. An Advisory Committee on Atomic Power Development keeps all other utilities fully informed of the progress being made. This Committee, which was set up by the Federal Government in 1954, meets periodically to assess the economic prospects of nuclear power throughout the country.

Because of the great pace of technological development in nuclear power throughout the world, AECL devotes a major effort to collaboration with many organizations. These include industrial firms and the scientific and engineering departments of universities in Canada and, through foreign government agencies and several international organizations, many technical groups in other countries. For example, the Canadian General Electric Company has designed and constructed WR-1, an organic-cooled experimental reactor, for the Whiteshell Nuclear Research Establishment, on a fixed price negotiated contract. The Canadian General Electric and Canadian Westinghouse companies are AECL's chief contractors for fuel element fabrication, and other work related to Canada's nuclear power program is carried out in collaboration with Shawinigan Engineering, Orenda Engines Division of Hawker Siddeley Canada Limited, Dilworth, Secord, Meagher and Associates, Atlas Steel Limited and Montreal Engineering Company Limited. In general, AECL's policy is to stimulate the interest of private industry in the development of nuclear power so that these firms can take over construction of power plants when the time arrives, leaving AECL free for fundamental studies and developing new reactor concepts. For some years AECL expects to continue a consulting engineering role in the design of nuclear generating stations. AECL also lends general support to the nuclear and related studies of Canadian universities and lets contracts to the universities on specific problems.

To support their activities in this field, both industry and universities need ready access to information. This was one reason why industry set up the Canadian Nuclear Association, a body that has held a highly successful series of annual conferences at which both progress and the prospects for the future are reviewed. A commercially published magazine, *Canadian Nuclear Technology*, maintains the flow of general information and opinion. Detailed technical information is available principally from the library of the Chalk River Nuclear Laboratories, which lends about 500 items a month from its comprehensive collection of the world's nuclear literature. Information is also distributed from extensive depository collections at the libraries of the University of British Columbia, McMaster University and the National Research Council and from seven smaller collections located across Canada.

In the international field, close ties are kept with the United States Atomic Energy Commission and the United Kingdom Atomic Energy Authority, both of which have representatives permanently at Chalk River. There is an agreement with the United States for co-operative work on heavy-water-moderated reactors; it provides for the free exchange of all technical data in this field and a commitment by the United States to spend \$1,000,000 yearly on research and development related to reactors of Canadian design. Collaboration has also been established with the International Atomic Energy Agency, the Organization for Economic Co-operation and Development, and Euratom, as well as with Australia, West Germany, India, Italy, Japan, Pakistan, Spain, Sweden, Switzerland, U.S.S.R. and, less formally, with Denmark, France and Norway. In India, a major experimental reactor—the Canada-India Reactor—similar to NRX at Chalk River was constructed and was formally inaugurated in January 1961.

A 200-megawatt plant similar to that at Douglas Point is being constructed in India on a co-operative basis, known as the Rajasthan Atomic Power Project (RAPP). India has announced plans to install a second similar unit on the same site and two more units on another site near Madras. Pakistan has entered into an agreement to purchase from the Canadian General Electric Company a 130-megawatt station for the Karachi area.

Research and Research Facilities.—At the Chalk River Nuclear Laboratories, basic and applied research is carried on by about 200 professional scientists and engineers supported by 300 technicians devoted to research in nuclear physics, nuclear chemistry, radiobiology, reactor physics, radiation chemistry, environmental radioactivity, physics of solids and liquids, and other subjects, using as their primary facilities the two major reactors, NRX and NRU, the auxiliary reactors, ZEEP, PTR and ZED-2, the tandem Van de Graaff accelerator and analytical facilities such as a precision beta-ray spectrometer, mass spectrometers, electron microscopes, multi-channel pulse analysers, automatic recorders, and analogue and digital electronic computers.

Basic research is carried on in many fields, especially that of the structure of atomic nuclei and of the interactions of neutrons, not only with individual nuclei but also with liquids and crystalline solids, particularly those involving energy transfer. For nuclear structure studies, the tandem Van de Graaff has made pioneer work possible by providing multiply-charged ions of precisely known energy and direction. It has proved possible to produce nuclei in specific energy states by different routes and to identify and analyse the states, thereby deducing the spin and other characteristics and discovering, for example, three correlated series of rotational states in the nucleus neon-20. Not only is this important to a basic understanding of nuclear structure but it also finds application in unravelling the complex of nuclear reactions responsible for the genesis of nuclei in the interior of stars.

Studies of neutron interactions with matter are made possible by the intense beams of neutrons available from the NRU reactor. By monitoring the neutrons in cosmic radiation, it has been possible to find correlations with the occurrence of solar flares and contribute to the recent advances of knowledge of phenomena in interplanetary space. Isotope techniques have brought about revisions in the basic theory of chemical reactions induced by radiation. This basic research may find a useful application in the technology of using an organic liquid as coolant in nuclear power reactors.

The research facilities of the NRX and NRU reactors have continued to attract individual scientists as well as teams from universities and from other countries. The international study on the scattering and slowing of neutrons by moderators and other materials of interest at high and low temperatures is drawing successfully to a close. More facilities for studying radiation damage under closely controlled conditions are coming into use. These include devices for measuring creep of metals under stress and fast neutron bombardment at controlled temperatures.

The first major installation at the Whiteshell Nuclear Research Establishment (WNRE) is the organic liquid-cooled, heavy-water-moderated experimental reactor WR-1, to be commissioned in 1965. Under a special agreement the facilities of this reactor will be shared with the USAEC and their contractors. The facilities are specially suited for development work toward large reactors of a similar type that have been selected by the USAEC as promising for their water desalination program. The facilities of WR-1 are quite extensive and can be applied to development work also with other coolants such as boiling water and superheated steam. Laboratory facilities at WNRE are specially suited to studies of the effects of radiation and a wide program from molecular biology to radiation chemistry and reactor engineering is envisaged.

Nuclear Power Development.—Much of the success of the CANDU series of reactors is attributable to the engineered design of the fuel tested in many experimental irradiations under conditions that are more exacting than normal service. The fuel is uranium dioxide specially prepared from natural uranium entirely in Canada. Strings of pellets of sintered oxide are charged into thin-walled zirconium alloy tubes. The tubes deform slightly in service in a determined manner that has proved satisfactory. The migration of the fission product atoms, especially the gases, has been extensively studied and satisfactory operating conditions established for the full energy yield of 9,000 megawatt-days per ton of uranium and more. This energy yield is so great that there is no need to make provision for processing the spent fuel and the prospective fuelling cost is less than one mill (0.1 cent) per kilowatt hour of electricity. This cost may be compared with about three mills from coal at \$8 per ton. The low fuelling cost is most important because Canada has access to such an abundance of coal, oil and natural gas that the competitive cost level for electric power is lower than in many other countries.

The low fuelling cost derives as much from the details of the design proposed as from the general type of reactor chosen. Some of the important features seem worthy of mention. At Douglas Point the first full-scale plant will generate 220 megawatts with a steam-cycle efficiency of 33.3 p.c., so that the reactor has to supply 660 thermal megawatts to the steam-raising plant. The reactor is essentially a tank of heavy water, 20 feet in diameter and 16.5 feet long, lying horizontally. It is penetrated by 306 fuel channels parallel to the axis on a nine-inch-square lattice. Each channel is a zirconium-alloy pressure tube of 3.25 in. inside diameter and about 0.16 in. thick. The fuel consists of bundles of 19 rods, 0.6 in. in diameter and 19.5 in. long, made of dense uranium dioxide in thin zirconium-alloy tubes. Heat is taken from the fuel directly by heavy water that passes at 560°F. to the steam boiler, where normal water is raised to saturated steam at 483°F. and 38 atmospheres. These details show that the design represents a considerable advance over that originally conceived in 1956, and the improvement bears promise that continued progress will lead to costs well below the economic target. As examples of the advance, it may be noted that, for the same electric power output, the total heat production of the reactor has been brought down from 790 to 700 megawatts, the efficiency of the steam cycle itself has risen from 27.9 p.c. to 33.3 p.c., and the length of fuel rod has been reduced from 86 to 30 kilometers. The prospective fuelling cost has dropped from 1.85 mill/kwh. to 1.0 mill/kwh. On the other hand, no over-all reduction has been achieved in the capital cost estimates which remain in the range of \$300 to \$400 per electrical kilowatt for the whole plant. However, a reduction is expected now that manufacturing experience has been gained which can be used in future construction. Even greater reductions in unit power cost will result at Pickering from the increase in the capacity of the reactor to 500 megawatts of electricity and the incorporation of several such units in a large generating station.

CANADIAN NUCLEAR REACTORS IN OPERATION, UNDER CONSTRUCTION OR APPROVED FOR CONSTRUCTION

Name	Location	Date of Start-up	Power	Fuel	Moderator	Coolant	Use
Zero Energy Experimental Pile (ZEEP).....	Chalk River, Ont.	1945	100 w.	Natural uranium metal or oxide	Heavy water	—	Lattice experiments
National Research Experimental (NREX)....	Chalk River, Ont.	1947	42,000 kw.	Natural uranium oxide and enriched uranium alloy	Heavy water	Ordinary water	Research and isotope production
National Research Universal (NRU).....	Chalk River, Ont.	1957	70,000 kw.	Enriched uranium alloy	Heavy water	Heavy water	Research and isotope production
Pool Test Reactor (PTR).....	Chalk River, Ont.	1957	100 w.	Enriched uranium alloy	Ordinary water	Ordinary water	Reactivity and absorption measurements
Toronto University Subcritical Reactor.....	Toronto, Ont.	1958	—	Natural uranium metal	Heavy water	—	Research and teaching
McMaster Nuclear Reactor (MNR).....	Hamilton, Ont.	1959	1,000 kw.	Enriched uranium metal	Ordinary water	Ordinary water	Research
ZED-2.....	Chalk River, Ont.	1960	100 w.	Natural uranium metal oxide or carbide	Heavy water	—	Lattice experiments
Nuclear Power Demonstration (NPD).....	Rolphton, Ont.	1962	20,000 kw. (electricity)	Natural uranium oxide	Heavy water	Heavy water	Power demonstration
Whiteshell Reactor No. 1 (WR-1).....	Pinawa, Man.	1965	40,000 kw. at first	Enriched uranium oxide	Heavy water	Organic liquid	Research and engineering tests
CANDU-P1HW-200 ²	Douglas Point, Ont.	1966	200,000 kw. (electricity)	Natural uranium oxide	Heavy water	Heavy water	Power
Karachi Nuclear Power Plant (KANUPP)...	Karachi, Pakistan	1970	137,000 kw. (electricity)	Natural uranium oxide	Heavy water	Heavy water	Power
CANDU-P1HW-500 (several reactors) ²	Pickering, Ont.	1970	500,000 kw. (electricity) each	Natural uranium oxide	Heavy water	Heavy water	Power

¹ NREX is essentially duplicated in the Canada-India Reactor, near Bombay, India, which started up in 1960.

² CANDU-PHW stands for "Canadian Deuterium Uranium-Pressurized Heavy Water".

³ The CANDU-PHW-200 design is also employed in the Rajasthan Atomic Power Plant in India, scheduled to start up in 1969.

An evaluation was presented at the third United Nations Conference on the Peaceful Uses of Atomic Energy at Geneva in September 1964 of cost estimates of several preliminary designs of large power reactors using heavy water as moderator. These designs represented types for which development work was well advanced. The differences lie in the choice of heat transfer fluid or 'coolant' and the steam cycle. Basically there are three coolants— heavy water, ordinary or light water, and an organic liquid. The heavy water could be under pressure to prevent boiling or to allow some boiling. Light water would have to boil or be in the form of 'fog' or 'wet steam'. The organic liquid must not boil. All types have excellent economic promise and it was decided to develop the boiling light water type chiefly for two reasons. By taking the steam direct to the turbine a boiler or heat-exchanger is eliminated and the efficiency is raised. The second advantage is a relaxation of the strictness of control of leaks needed with hot heavy water, both because of its cost and because of the toxicity of the tritium it contains. Some development of the organic liquid system continues under a new agreement with the United States in support of its program to develop such a system for water desalination as well as for power.

Most of this development work centres on establishing the properties of materials for the arduous environment of high temperatures, and radiation effects affecting the solids and the fluids. In ordinary engineering, the three parameters of stress, temperature and time lead to complex analyses, especially when corrosion and atomic diffusion are active. In reactors, irradiation is a fourth and major parameter. Thus, materials development still calls for a major scientific and engineering program of studies.

Section 3.—Space Research in Canada*

The interests of Canadian scientists engaged in space research continue to be mainly in the field of aeronomy with particular, though not exclusive, emphasis on the high-latitude atmospheric and magnetospheric phenomena which are now generally believed to be related to the various disturbances on the sun. Canada, with its large land mass extending on both sides of the auroral zone, is ideally located for studies of medium- and high-latitude atmospheric phenomena and Canadian scientists have long been active in this exciting field. While many of the older programs of ground-based observations are still of great importance and are being carried out, the new measurements from satellites and rockets are making a significant contribution to knowledge of solar-terrestrial relations and in the next few years the importance of these studies using the new space techniques will increase.

The satellite program of the Defence Research Board, carried on in collaboration with the United States National Aeronautics and Space Administration (NASA), continues to form a major part of the Canadian space activities. The Canadian satellite 1962 Beta Alpha (*Alouette*), which was launched on Sept. 29, 1962, is still in orbit. Its instruments are functioning satisfactorily and there is every indication that it will continue to operate and send back scientific data for many months to come. The satellite carries a number of experiments but its main objective is the sounding of the ionosphere from above. The ionosphere is the diffuse layer of highly conducting gas lying between heights of about 60 to 300 miles. It reflects radio waves over a wide band of frequencies and is of great practical importance for communications. The underside of the ionosphere has been studied for many years by the technique of sending a short pulse of radio waves up from the ground and examining this pulse after it had been reflected back from the ionized regions. The satellite *Alouette*, however, was the first spacecraft to provide scientists with a continuous sounding of the ionosphere from above.

Other instruments carried by the satellite enable studies to be made of radio waves from outer space and very low frequency electromagnetic waves whose propagation is influenced by the earth's magnetic field. There are also a number of detectors to study cosmic rays, energetic particles in the Van Allen radiation belts and the artificial radiation

* Prepared (June 1965) by C. Collins, Division of Pure Physics, National Research Council, Ottawa.

introduced by high-altitude nuclear explosions. Data are transmitted from the satellite to the ground stations in several countries around the world and the magnetic tape records are sent to Ottawa for analysis. Scientific results to date have been most gratifying and the satellite measurements have added greatly to knowledge of the earth's upper atmosphere.

The over-all design and construction of the spacecraft were carried out by the Defence Research Telecommunications Establishment. Some components were made by Canadian industry and the cosmic ray instruments were the responsibility of the National Research Council. The cost of the launching vehicle, the actual launching and much of the data recovery were undertaken by the NASA as part of its international co-operative program. This joint Canadian-United States program is continuing. The launching of *Alouette B*, successor to the present satellite, is scheduled for late 1965. *Alouette B* is the first of four satellites to be built in Canada for the International Satellites for Ionospheric Studies (ISIS) series. These vehicles, to be launched at intervals during the next five years, will carry more sophisticated instruments and orbit at greater heights than *Alouette I*.

The rocket-launching facility at Fort Churchill, Man., located almost under the belt of maximum auroral activity, has been a centre of activity during the past year. A total of 103 rockets and 41 high-altitude balloons were launched in 1964. Four launchers are in use and a variety of rockets, including *Arcas*, *Nike*, *Cajun*, *Nike Apache*, *Astrobee*, *Aerobee*, *Argo D-4* (*Javelin*) and the *Black Brant* series. The range is operated by the United States Air Force for joint United States and Canadian scientific purposes. Early transfer of its operation to the National Research Council of Canada is planned.

Rockets have a special role in the space programs because there is an important region of the upper atmosphere that is too low for satellite orbits and too high to be reached by balloons or aircraft. This is the region between heights of about 25 and 200 miles. Here are found the absorbing layers in the lower ionosphere which cause radio blackouts and here are detected the complex atmospheric processes which produce the visible aurora. Because the axis of the earth's magnetic field is tilted, the auroral zone sweeps down across Canada, and Churchill lies almost in the middle of this zone. This region of the atmosphere is therefore of great interest and importance to Canadian scientists. For many years investigations were limited to ground-based radio and optical measurements but now rockets are being used to carry instruments right into the aurora. These measurements, *in situ*, of electron density, temperature and charged particles will ultimately lead to a proper understanding of the aurora and high-latitude disturbances.

Many of the rockets fired at Churchill are of Canadian design and development. These are the *Black Brant* rockets which were pioneered by the Defence Research Board and are now produced commercially in Winnipeg. The first in the series, the *Black Brant I*, was an experimental vehicle and is now obsolete. *Black Brant II* is a 17-inch diameter vehicle capable of carrying 150 lb. of payload to over 100 miles. *Black Brant III* is a smaller rocket, 10 inches in diameter which will lift 40 lb. to about 100 miles. *Black Brant IV* is a combination of *II* and *III* and will go to a height of about 600 miles. *Black Brant V* is an optimum design of the *II*. Most of the flights have been made with the *II*'s but the *III*'s and *IV*'s have been successfully flown and will be used to carry scientific instruments in the immediate future.

Along with the increased activity in Canadian space programs there has been a general broadening of interests. The Meteorological Branch of the Department of Transport (DOT) Meteorological Satellite Data Laboratory is conducting a program to produce applications of satellite observations to the problems of meteorology and ice reconnaissance. In the field of communications satellites, the DOT has a joint program with NASA in which Canada participates in the testing of such spacecraft as *Telstar*, *Relay* and *Syncom* and a new experimental ground station will provide information for the development and use of communication satellite systems.

Canadian universities have continued to be very active in the field of space research. Nine university groups have programs involving the instrumenting of rockets, balloons

or satellites for upper atmospheric studies. The McGill University program of gun-launched vehicles in the Barbados known as HARP (High Altitude Research Program) has been carried on with considerable success. About 90 launchings were made in 1964. Improvements have been made to both the gun and the vehicles and successful measurements have been made of wind shears and atmospheric constituents in the 100-km. region. This program is carried on in collaboration with the U.S. Army.

Much of the foregoing work is shared with Canadian industry. Civilian contractors are producing instruments and space vehicles for both Canadian and foreign experimenters. In some programs, such as the *Alouette* satellite and the development of *Black Brant* rockets, industry is playing a major role. Other work of great importance for the space programs, such as fundamental research on materials and in plasma physics, is also being carried on in industrial laboratories.

Section 4.—Research in Geophysics and Astronomy

Research in the fields of geophysics and astronomy is dealt with briefly in this Section. A more extended treatment of geophysics, appearing in the 1965 Year Book at pp. 45-47, is brought up to date by the following item which shows the progress made in 1964-65. A special article on Astronomy in Canada, appearing in the 1965 edition at pp. 47-55, indicates in some detail the recent advances made in astronomical research and educational facilities; the current item on the subject mentions the highlights only.

Geophysics.*—Geophysics is the study of the earth, including the oceans and atmospheres, by the methods of physics. It embraces a number of fields, each a major science in itself, such as geodesy, seismology, terrestrial magnetism, meteorology, oceanography and hydrology. Work in geophysics in Canada is carried on by a number of Federal Government departments, certain provincial governments, nearly all universities and by companies engaged in geophysical prospecting for oil or minerals.

The year 1965 was marked by further progress in several fields, partly because of Canadian commitments in a number of international programs. In seismology, the number of earthquake recording stations, operated by either the Dominion Observatory or universities, increased to 25. As part of the International Upper Mantle Project, several large-scale studies of the crust were carried out, using waves from artificial explosions. A major investigation of the Hudson Bay area by government and university groups was conducted during the summer of 1965 with the support of the special oceanographic ship *Hudson*.

Measurements of both the gravitational and magnetic fields of the earth were extended, over land areas by the Dominion Observatory and the Geological Survey, and over the oceans by the Bedford Institute of Oceanography. These measurements provide information that is extremely useful in the study of concealed geological structures. Studies of the northern lights, or aurora borealis, and related phenomena involving electromagnetic effects in the upper atmosphere received particular attention from both university and government groups as part of Canada's participation in the International Quiet Sun Year. This study was undertaken at a time of minimum sunspot activity (1964-65) to indicate the contrast with conditions during the International Geophysical Year (1957-58), which was at a time of maximum sunspot activity.

Resources of fresh water continued to be a cause of concern throughout the world, and Canada's hydrologists completed plans to participate in the International Hydrological Decade, a ten-year study of the world's freshwater resources. As these resources include the water contained in glacial ice, the mapping of existing glaciers in the country was extended considerably during the field season.

Meteorology includes not only the routine forecasting carried out principally by the Meteorological Branch of the Department of Transport (see p. 65) but also research in special problems conducted by the Branch and by a growing number of university groups.

* Prepared by Dr. G. D. Garland, Geophysics Laboratory, University of Toronto, Toronto.

A problem that received particular attention was that of hail formation, since hail damage to crops can be extremely serious in certain areas and there is considerable interest in the possibility of forecasting or even preventing it.

Geophysical exploration for oil, chiefly by means of seismic waves from small explosions, was carried on by several companies in Western Canada and also offshore in the Pacific and in the Atlantic Grand Banks area. Prospecting for minerals by magnetic or electro-magnetic measurements was intensified as a result of the demand for copper. The recent large copper discovery near Timmins, Ont., was made on the basis of geophysical surveys.

Astronomy.*—Modern astronomical research is based on observations secured with complex optical and radio telescopes. The major centres of this research in Canada have developed within the Federal Government and at a few universities. Research in optical astronomy began early in this century at the Dominion Observatory, Ottawa, and this was followed by the construction of larger telescopes at the Dominion Astrophysical Observatory, Victoria, and the David Dunlap Observatory of the University of Toronto. Smaller observatories have also been built at the University of Western Ontario and at Queen's University. A new observatory, commemorating the visit of Her Majesty Queen Elizabeth II to Canada in October 1964, is to be constructed on Mount Kobau in southern British Columbia. It will be equipped with a large reflecting telescope 150 inches in diameter and will be a national observatory available to astronomers throughout the country.

Canada first entered the field of radio astronomy, the study of radio emissions from beyond the earth, in 1946 when the National Research Council began its study of solar radio waves. Radio astronomy has expanded rapidly and there are now radio telescopes operated by the University of Toronto, by Queen's University, by the Dominion Observatory near Penticton, B.C., and by the National Research Council at a large observatory in Algonquin Park, Ont., where a large steerable radio telescope 150 feet in diameter will commence observations in 1966. An 84-foot parabolic telescope and two large arrays of antennas are in operation at the Penticton site.

Canadian astronomers are engaged in various specialized fields of research. In the study of the solar system the sun has been studied for many years by both optical and radio techniques with emphasis on solar flares and other phenomena which affect the environment of the earth. Solar eclipses in which the path of totality crosses Canada have been observed whenever possible. Only minor attention has been devoted to study of the planets but major efforts have gone into meteor research. Both photographic and radar equipment are employed in this work and the study of meteor spectra and radar echoes from meteor trails have been particular specialties. There is an increasing interest in the related field of meteorites and Canada has figured prominently in the study and interpretation of old craters caused by the impact of huge meteorites.

Stellar astronomy has been the largest single field of Canadian astronomy. One aspect of this is the accurate determination of the positions and motions of stars in the sky. The Dominion Observatory is continuing an active program of positional astronomy aided by new and highly specialized instruments. The large telescopes at Victoria and Toronto have been used primarily for spectroscopy, one of the major tools of astrophysics. Several programs have been completed in which large groups of stars have been studied individually to determine their true luminosities and motions in the line of sight. The results have then been used for research on the structure of the earth's Milky Way galaxy. From spectroscopic studies of certain types of close double stars, information on such properties as the size, mass, density and temperature of individual stars is secured. Stars whose light varies in intensity have been studied by photography for many clusters of stars and are also studied by photoelectric devices mounted on the telescopes at Victoria, Toronto and the University of Western Ontario.

* Prepared by Dr. Ian Halliday of the Dominion Observatory, Ottawa.

Although the optical telescopes in Canada have not been used for extragalactic research, many of the stronger sources in the field of radio astronomy are now known to be exceedingly distant objects far beyond the stars of the earth's galaxy. Canadian radio telescopes are, and will continue to be, engaged in the observation of such sources. At the same time they are also involved in the study of clouds of gas between the stars of the earth's system and this work complements the knowledge gained from spectroscopic research with optical telescopes. The large size of the Queen Elizabeth II telescope planned for Mount Kobau will guarantee Canadian astronomers an opportunity to become active in all fields of extragalactic research and will provide essentially complete facilities for astronomical research in Canada.

Section 5.—Other Scientific and Industrial Research Facilities

This Section outlines research facilities and activities other than those covered in Sections 1 to 4—various federal departments and agencies, provincial organizations, universities and industry. The first three types of institutions—federal, provincial and university—have, of course, an interest in problems of industrial significance. As already stated, although many Canadian industries now possess research facilities—some of them quite extensive—much of the industrial research to date has been done under government auspices.

Subsection 1.—Federal Organizations

Research activities in the various Federal Government departments and agencies have expanded rapidly, at first because of the need for speeding up the production of raw materials, which were for many years the basis of Canada's export trade, and later because of increasing interest in the processing of raw materials, the necessity of meeting the needs of national defence and the developing consideration for many human and resource requirements. In addition to the activities of the National Research Council, Atomic Energy of Canada Limited and the Department of Mines and Technical Surveys dealt with in Sections 1 to 4, federal agencies involved in research include the Departments of Agriculture, Forestry, Fisheries, other Branches of the Mines and Technical Surveys, National Defence, National Health and Welfare, and Northern Affairs and National Resources.

The scientific work of the Department of Agriculture is described in Chapter XI of this volume, the investigations conducted by the Board of Grain Commissioners in Chapter XXI, the specialized work in scientific forest research in Chapter XII, scientific services concerned with Canada's mineral resources conducted by the Department of Mines and Technical Surveys in Chapters I and XIII, investigational work of the Department of Fisheries in Chapter XV, research of the Canadian Wildlife Service of the Department of Northern Affairs and National Resources in Chapter I, medical and other research conducted by the Department of National Health and Welfare and other agencies in Chapter VI, and the work of the Defence Research Board in Chapter XXVI.

Late in 1963 the Department of Northern Affairs and National Resources completed the first permanent scientific research laboratory to be built north of the Arctic Circle. This laboratory, at Inuvik, N.W.T., has year-round facilities specially designed for Arctic research and serves as a base for extensive field studies in the Western Arctic. It accommodates a permanent staff of eight scientists from many disciplines and up to 16 visiting researchers. The operation of the laboratory is in charge of a Manager working under the direction of the Northern Co-ordination and Research Centre of the Department.

Subsection 2.—Provincial Organizations

Five of Canada's provincial governments (Nova Scotia, New Brunswick, Manitoba, Saskatchewan and Alberta) have established research councils or foundations and two others (Ontario and British Columbia) have assisted financially in the setting up of such

organizations. Quebec has also announced its intention of establishing a provincial research council and industrial research centre in the near future. Most provincial governments have university laboratories to consult, particularly about local industrial and agricultural problems, and many individual departments have facilities for research in their particular fields of endeavour or assist research through the provision of financial aid to students working in those and other scientific fields. Agriculture is particularly well covered because of its importance as an export industry but the provinces are also intensely interested in their other natural resources. Their efforts in the fields of agriculture, forestry, mining and fisheries are outlined in the Chapters dealing with those subjects (see Index).

Nova Scotia Research Foundation.—This body was created by the Government of Nova Scotia in 1946 to give its people scientific and technical assistance in finding new and better ways to utilize the resources of the forest, the sea, the farm, the mine and the process industries. To this end it seeks to correlate and further scientific work on local problems and available resources. At present in temporary quarters, the Foundation is planning a new laboratory building to be financed by an Atlantic Development Board grant. It assists universities, colleges, research groups, industries, provincial and federal departments and individuals by loans of equipment, grants, scholarships, laboratory and summer assistants, library, cartographic, photogrammetric and translation services, and technical information. It has supported or collaborated in work on breeding new varieties of plants and root nodule bacteria; on antibiotics, poultry, blueberry culture, coal-burning equipment, the constitution and gasification of coal, the non-destructive testing of mine equipment, the utilization of anhydrite, diatomite, fish waste, gypsum, seaweed, slag, slab wood and fertilizing materials. It has conducted geophysical, geological, air pollution and seaweed surveys as well as forest aphid, forest ecology and genetic studies and has assisted studies on the nutrient cycles of lakes, on X-ray crystallography, on pressures in underground strata and on crop damage by predators. Its Geophysical Division is equipped to undertake all types of magnetometric, gravimetric, resistivity, seismic and electromagnetic explorations. The Technical Services Division provides free technical information to industries in the province and offers them research and development services and facilities in the fields of physics, chemistry, engineering and operations research. A *Research Foundation Bulletin* is issued from time to time to keep industry advised of Foundation activities and also of important discoveries in science and technology. The *Research Record* provides a descriptive account of past research projects.

The New Brunswick Research and Productivity Council.—The aims of this Council, established by an Act of Legislature in 1962, are *inter alia* to "promote, stimulate and expedite continuing improvements in productive efficiency and expansion in the various sectors of the New Brunswick economy". The Council receives an operating grant from the provincial government and support in specific areas from federal sources. It undertakes contract research on a repayment basis from industry. Its laboratories are at present 10,000 sq. feet on a seven-acre site in Fredericton, and plans are being drawn up to extend this to a total of 50,000 sq. feet with the support of a capital grant of \$1,250,000 from the Atlantic Development Board. Staff at the beginning of 1965 numbered 20 and is expected to increase to 35 by the beginning of 1966. The work of the Council is centred on providing industry with industrial engineering, 'trouble-shooting' and technical information services, training courses in management techniques and upon applied research in the fields of mechanical and chemical engineering, food technology, microbiology and mineral technology. Policies are established by 13 Council members representative of provincial industry, labour, government and education with the help of specialist advisory committees. The Executive Director has supervision over and direction of the work of the staff and has charge of all matters relating to the administration of the affairs of the Council. The Chairman of the Council reports annually to the Premier of the province.

Manitoba Research Council.—The Manitoba Research Council consists of seven members representing natural-resource-based industry, manufacturing, the University of Manitoba and labour. The Council is financed by provincial government appropriations, although fees and service charges may be levied for its services. The objectives of the Council are to promote or carry on, or cause to be promoted or carried on, research and scientific inquiries respecting agriculture, other natural resources, industry or other segments of the economy of the province and to help to secure for Manitoba the benefits of research and scientific inquiries carried on elsewhere. The preponderance of small industrial establishments in Manitoba and their need for assistance in developing a more scientifically based production capability to improve their competitive position in domestic and world markets was the major technical reason for the establishment of the provincial Research Council.

The Council is at present analysing the needs for and supply of facilities for research in the province. Several specific projects have been undertaken for which existing research facilities within and outside the province and outside Canada have been utilized. The Council maintains an office and staff in the Provincial Government Administration Building (Norquay Building) in Winnipeg.

Saskatchewan Research Council.—This Council was set up in 1947 under an Act of the Government of Saskatchewan. The Council carries out research in the physical sciences, both pure and applied, with the aim of improving the provincial economy. It is therefore particularly concerned with the commercial exploitation of provincial resources and the scientific aspects of business. At first the Council had no scientific personnel and laboratory facilities of its own. Its research program was carried on at the University of Saskatchewan and was promoted by means of grants to members of the staff and scholarships to graduate students. The 1947 Act was amended in 1954 to empower the Council to acquire property, employ staff and conduct its own financial affairs. Laboratory buildings were erected on the university campus in 1957 and were extended in 1963. In the present program of research the emphasis is on water and mineral resources, fields of agriculture not covered by other organizations, and technical assistance to industry. A large part of the program is carried out by the permanent staff, now numbering about 60, but some of the Council's research is still promoted by grants to university staff. The members of the controlling body, the Council proper, are appointed by the Lieutenant-Governor in Council and consist of representatives of the government, industry and the university.

Research Council of Alberta.—The Province of Alberta set up a scientific and industrial Research Council in co-operation with the University of Alberta in 1921, the promotion of mineral development within the province being the chief purpose leading to its establishment. The Council operates under an Act somewhat similar to that which set up the National Research Council and is principally financed by provincial government appropriations. The present program is directed to the application of basic and applied science toward the development of the natural resources of the province and toward the establishment of new industrial operations within the province. Investigations in the Council laboratories and pilot plant are organized into two branches—the Earth Sciences Branch which includes all work on groundwater geology, geological surveys and research, mineral beneficiation and soils, and the Fuels Branch which includes work on coal, petroleum, natural gas, chemical process and product development, and gasoline and oil testing. There are, in addition, project groups dealing with industrial engineering services, highway research, a co-operative program on cloud physics with reference to the hail problem, and a number of special projects.

The operations of the organization are controlled by a Council of ten individuals representative of the government, the university and industry. The various research projects are reviewed by advisory committees composed of specialists in each field, drawn from industry, the university and the provincial government.

The main Council laboratories are located on the University of Alberta campus in Edmonton. A new pilot plant facility is under construction in the Clover Bar area east of Edmonton.

Ontario Research Foundation.*—The Ontario Research Foundation, established in 1928, operates as an independent corporation, deriving its powers from a special Act of the Legislature and governed by a Board of Governors appointed by the Lieutenant-Governor in Council of Ontario. The organization was financed initially by an endowment fund composed of subscriptions from commercial and industrial corporations, from private individuals, and a grant from the provincial government. However, most of its current income is derived from contract research undertaken for industry, although income is also obtained from the various government departments for research and other work undertaken on a contract basis. The Foundation is concerned primarily with the development of industry and the development of Ontario's natural resources through the application of scientific research. However, Foundation activities are not confined to the province; research contracts are routinely handled for any organization, without reference to location. Being primarily an industrial research institution, the Foundation's main areas of scientific endeavour are chemistry, physics, metallurgy, biochemistry, textiles and engineering. Other Foundation departments, such as parasitology and physiography, are engaged particularly in studies related to Ontario's natural resources. A field engineering and technical information service is provided free to industry, sponsored by the Ontario Department of Economics and Development and by the National Research Council.

British Columbia Research Council.*—This Council is a non-profit, industrial research institute with offices and laboratories on the campus of the University of British Columbia. Its function is to enable even the smallest firms to improve their competitive position in Canadian and world markets by the use of the most up-to-date scientific knowledge. The Council provides a free technical information service in collaboration with the National Research Council, carries out contract research for clients on a confidential basis and initiates "in house" research programs designed to promote and utilize the resources of the province. The Council is active in the areas of applied biology, chemistry, engineering, physics, operations research, industrial market studies and economic feasibility studies.

Subsection 3.—University Research

Research conducted in the universities falls into three broad categories: research projects carried out by faculty members in addition to their teaching duties; investigations by students, under the guidance of professors, to meet the requirements for advanced degrees; and larger projects or programs undertaken co-operatively on a faculty or inter-faculty basis in large laboratories or specialized institutes connected with the university.

Faculty Resources.—Research is generally considered to be an important part of the function of the university teacher and many of the more than 10,000 full-time staff members of Canadian universities can be assumed to be engaged in such activity. With most staff members, only that part of the time that can be spared from teaching duties can be devoted to research during the teaching session but, for those not teaching summer classes, the summer months offer an opportunity for relatively uninterrupted research activity. The projects undertaken are so diverse in character as to defy brief classification here but information concerning them is available in the annual reports of the presidents of the individual universities. For the humanities only, a more convenient source of information about the scope and diversity of Canadian scholarship is the "Bibliography of Scholarly Publications" included in *The Humanities in Canada*, a report prepared by F. E. L. Priestley for the Humanities Research Council of Canada and published by the University of Toronto Press in 1964.

* See also p. 389.

Student Resources.—Prior to World War II, higher education in Canada concentrated almost exclusively on the production of trained professionals to serve the community as doctors, lawyers, engineers, etc., and only three Canadian universities had established graduate schools. In 1963-64, however, 34 universities and colleges were offering work at the graduate level, 19 of them with doctorate programs. The writing of a research thesis is an important part of the requirements for the award of the higher degrees toward which the students enrolled in these schools work. Compilations of the numbers of such students by sex, course, university, degree sought and year of expected graduation may be found in the annual series *Statistical Summary of Students Registered in the Graduate Schools of Canadian Universities in Physical and Earth Sciences, in Architecture and Engineering, and in Life Sciences*, published by the National Research Council, and *Graduate Students in the Humanities and Social Sciences Registered at Canadian Universities*, published by the Canadian Universities Foundation (now the Association of Universities and Colleges of Canada).

In 1963-64 there were 6,045 graduate students registered in those fields covered by the National Research Council publication, of whom 2,341 were preparing for the doctorate. Comparable figures for the humanities and social sciences were 6,903 graduate students and 975 doctorates, making a total of nearly 13,000 graduate students enrolled in 1963-64. In the same year, 481 Ph.D.'s and 3,490 Masters degrees and licences were conferred.

Financial Resources.—Financial support for university research comes primarily from five sources: departments and agencies of the Federal Government, quite heavily committed to support research largely in the natural and life sciences; industry, which supports both basic and applied research; private foundations, which have for many years been generous supporters of research, sometimes in selected fields; provincial governments; and the United States Government. Among these sources, the Federal Government is the largest single contributor. In 1963-64, its share of the total provision of funds for university research amounted to more than 60 p.c.; provincial governments and industry each contributed about 5 p.c.; 13 p.c. came from private foundations; and the remainder from other sources.

Although federal funds are channelled through almost a score of different departments and agencies, by far the greatest part of the total is disbursed by four agencies: the Defence Research Board, the Department of National Health and Welfare, the Medical Research Council and the National Research Council. Most of the assistance is in the form of direct grants in support of research projects undertaken by university staff members but a significant part of the total program is the assistance given to graduate students working for higher degrees. Funds are also made available to defray associated expenditures, such as those incurred in the publication of research journals and the holding of conferences.

The activities of the Defence Research Board in support of university research consist mainly in the provision of funds (\$2,400,000 in 1963-64) for projects in basic sciences that are relevant to the defence of the nation. Funds administered by the Department of National Health and Welfare (\$3,900,000) and the Medical Research Council (\$5,100,000) go chiefly to support research in the medical and para-medical sciences. The National Research Council (\$12,600,000) confines its support to the physical and earth sciences, architecture and engineering, and the life sciences.

In the humanities and social sciences, federal support of research is on a much smaller scale. Some Federal Government agencies such as the Defence Research Board and the Departments of Citizenship and Immigration, Labour, and Northern Affairs and National Resources operate small programs of university grants and contracts for research in economics, anthropology, sociology and related disciplines, but the total funds made available under these programs in 1963-64 amounted to only about \$100,000.

The major source of funds for the promotion of the arts, humanities and social sciences, including research in these fields, is the Canada Council (see p. 383). It is rather difficult to define and categorize the various aspects of the Council's support of university research. Broadly speaking, however, three main categories can be identified: assistance to individual postgraduate students and research fellows; grants-in-aid of particular research projects; and assistance with ancillary research activities such as the compilation of indexes and bibliographies, purchases for libraries, publication costs and travel expenses. The total disbursed for these purposes in 1963-64 was some \$400,000, distributed about equally among the three categories. In the case of scholarships and fellowships, only those awards (about 85) made to students pursuing their studies at Canadian universities and colleges are included. Many of the more than 100 grants-in-aid of research were paid to defray expenses involved in travel and study abroad but, as the grantees were generally staff members of Canadian universities, these sums are included in the total.

Subsection 4.—Industrial Research

Industrial research in Canada is changing very rapidly. The emergence of the country as a highly industrialized society, its entrance into multitudinous fields of production, the rapid growth of many large nation-wide industries, the serving of a discriminating domestic market and the meeting of competition from abroad have had the effect of making Canadian manufacturing establishments research conscious and many of the larger ones now possess competent research organizations.

On Nov. 29, 1962, an amendment was passed by Parliament to the Income Tax Act, allowing corporate taxpayers, commencing in 1962, to deduct 150 p.c. of their increased expenditures on scientific research for industrial purposes when computing taxable income. This amendment is evidence of the Federal Government's desire to encourage industrial research.

Industrial Research and Development Expenditures.—The latest DBS survey of expenditures on industrial research in Canada was conducted in 1964 and provided figures for the calendar year 1963 and estimates for the year 1964. These figures are summarized in the following tables; details are contained in DBS publication *Industrial Research and Development Expenditures in Canada, 1963* (Catalogue No. 13-524).

The type of industrial research and development covered by these surveys ranges from pure research designed to obtain new knowledge in the physical and life sciences to conceiving and developing new products and processes, or major changes in products and processes, and bringing them to the stage of production. Such activities as market research and process and quality control are excluded. Companies surveyed were asked to report the cost of research and development done within the company in Canada and payments for research done outside the company in Canada; estimates of payments for research and development conducted outside the company and outside of Canada were also requested.

Total figures show considerable fluctuation in expenditures on research and development over the years surveyed. However, this fluctuation has been caused largely by variations in Federal Government contracts to the aircraft sector of the transportation equipment industry. If all funds received from the Federal Government are removed from annual expenditures, a trend of continuous expansion is revealed. In 1963, 701 firms reported research expenditures; of these, 16 accounted for one half of all intramural research expenditures.

1.—Total Research and Development Expenditures, 1955-64

Year	Expenditure on Research and Development in Canada		Expenditure on Research and Development Outside Canada	Total
	Done Within Reporting Company	Done Outside Reporting Company		
	\$'000,000	\$'000,000	\$'000,000	\$'000,000
1955.....	51.4	1.9	12.1	65.4
1957.....	124.5	4.2	19.8	148.5
1958 (estimate).....	132.5	¹	27.0	159.5
1959.....	95.6	3.3	21.7	121.6
1960 (estimate).....	81.7	¹	27.3	109.0
1961.....	114.0 ²	4.3	31.2	149.5 ²
1962 (estimate).....	124.5 ²	¹	35.4	159.9 ²
1963.....	160.2	8.0	37.8	206.0
1964 (estimate).....	190.0	¹	38.5	228.5

¹ Included with expenditures outside Canada.

² Since extramural payments include a number of payments which become intramural expenditures for the recipient firms, the totals have been adjusted to exclude duplication.

Three industries—transportation equipment, electrical products, and chemicals and chemical products—have accounted for more than one half of all research and development performed in Canada every year since 1955. In 1961, for the first time, the research and development expenditures of the transportation equipment industry, which are used largely for aircraft development, did not exceed those of every other industry. In that year the electrical products industry, which includes electronic equipment, was the leading performer of industrial research and development. In 1963, the transportation equipment industry, with \$31,200,000 assigned to research and development expenditures, was still behind the electrical products industry; however, if payments made outside Canada are included, the transportation equipment industry was first (\$39,300,000) and the electrical products industry was second (\$34,500,000).

2.—Research and Development Expenditures in Canada, by Major Industrial Group, 1961 and 1963

Group	1961 ²		1963	
	Amount	P.C. of Total	Amount	P.C. of Total
	\$		\$	
Transportation equipment.....	17,373,480	15.0	31,202,042	19.1
Electrical products.....	28,199,659	24.3	33,435,679	20.5
Chemicals and chemical products.....	20,292,535	17.5	25,021,027	15.3
Totals.....	65,865,674	56.8	89,658,748	54.9
Other industries.....	50,018,214	43.2	73,788,892	45.1
Grand Totals.....	115,883,888	100.0	163,447,640	100.0

Table 3 shows intramural research and development expenditures over the four years 1961-64. The transportation equipment industry is given separately because of substantial fluctuations in its expenditures. Most of the other industries have increased their research and development activities over the period; the chemical and electrical products industries reported the greatest absolute increases, together having accounted for over 40 p.c. of total intramural expenditures (excluding those of transportation equipment) since 1961.

3.—Intramural Research and Development Expenditures, by Industry, 1961-64

Industry	1961 ¹	1962 ¹ , *	1963	1964 ¹
	\$	\$	\$	\$
Mining, quarrying and oil wells.....	4,820,816	5,305,551	6,560,188	6,640,782
Manufacturing—				
Foods and beverages.....	2,591,487	2,499,484	4,299,244	5,019,982
Rubber products.....	1,425,008	1,576,587	1,873,549	1,890,000
Textile products.....	1,487,152	1,562,364	1,875,104	1,984,415
Wood products.....	98,050	148,136	171,703	204,700
Paper products.....	113,140	123,952	117,821	105,500
Furniture and fixtures.....	6,545,370	7,201,684	9,099,560	10,228,722
Primary metal.....	7,053,761	8,217,319	10,434,484	11,111,600
Metal fabricating.....	2,361,759	3,093,503	4,160,003	3,004,136
Machinery.....	5,309,036	5,836,531	6,982,317	6,881,366
Electrical apparatus and supplies.....	28,179,519	28,435,263	33,288,516	37,241,774
Non-metallic mineral products.....	1,488,330	1,502,480	1,852,082	1,907,074
Products of petroleum and coal.....	5,529,202	6,450,932	7,583,466	8,875,000
Chemicals and chemical products.....	19,573,959	21,321,895	24,449,969	22,620,425
Other manufacturing (incl. tobacco and tobacco products, leather products, clothing and knitting mills, and miscellaneous).....	3,863,690	6,018,869	7,625,466	9,021,108
Transportation, storage, communication and other utilities.....	3,185,165	3,642,448	4,029,545	9,338,000
Other non-manufacturing (incl. construction industry, scientific and engineering services and trade associations).....	2,990,862	3,279,228	4,635,726	5,781,930
Totals (excl. transportation equipment)...	96,616,306	106,216,226	129,038,743	141,856,514
Transportation equipment.....	17,366,655	18,291,984	31,132,110	48,159,000
Totals, All Industries.....	113,982,961	124,508,210	160,170,853	190,015,514

¹ Estimates based on companies' intentions.

The product group for which the largest percentage of research and development expenditures was made in 1963 was the electrical products group, which accounted for 22.9 p.c. of the total compared with 18.9 p.c. in 1961. The chemicals group, including drugs and medicines, which accounted for 20.0 p.c. in 1961 and was in first place in that year, declined to 10.6 p.c. in 1963. The transportation equipment group as a whole received 18.8 p.c. of the total in 1963, of which aircraft and parts accounted for 16.7 p.c. as compared with 15.7 p.c. in 1961.

4.—Intramural Research and Development Expenditures, by Product Group, 1963

Product Group	Amount	P.C. of Total	Product Group	Amount	P.C. of Total
	\$			\$	
Aircraft and parts.....	26,729,646	16.7	Machinery (except electrical)...	8,271,375	5.2
Chemicals (except drugs and medicines).....	12,964,859	8.0	Motor vehicles and parts.....	2,941,619	1.8
Drugs and medicines.....	4,148,723	2.6	Petroleum and natural gas.....	6,480,500	4.1
Electrical equipment (except electronics).....	9,443,139	5.9	Primary metals.....	12,906,529	8.0
Electronics.....	27,232,687	17.0	Professional and scientific instruments.....	4,092,137	2.6
Fabricated metals.....	2,146,454	1.3	Other.....	33,834,288	21.3
Forest Products—					
Pulp and paper.....	7,509,970	4.6			
Other.....	1,468,927	0.9			
			Totals.....	160,170,853	100.0

The sources of research funds for intramural research and development in the different industries are shown in Table 5 for 1963. These figures are not comparable with those published for previous years.

**5.—Sources of Funds for Intramural Research and Development,
by Industry, 1963**

Industry	Reporting Company	Parent, Affiliated or Sub- sidiary Companies	Government Funds	Contract Work for Other Companies	Other	Total
	\$	\$	\$	\$	\$	\$
Mining, quarrying and oil wells.....	6,011,055	27,582	124,900	218,422	178,229	6,560,188
Manufacturing—						
Foods and beverages.....	3,973,514	50,846	173,684	400	100,800	4,299,244
Rubber products.....	1,507,637	347,912	18,000	—	—	1,873,549
Textile products.....	1,858,104	—	17,000	—	—	1,875,104
Wood products.....	113,043	—	—	—	58,660	171,703
Furniture and fixtures.....	117,821	—	—	—	—	117,821
Paper and allied industries.....	7,147,082	134,841	70,237	174,200	1,578,200	9,099,560
Primary metal.....	10,336,987	32,183	1,438	31,214	32,662	10,434,484
Metal fabricating.....	3,213,447	3,500	929,056	—	14,000	4,160,003
Machinery.....	6,043,553	678,731	260,033	—	—	6,982,317
Transportation equipment.....	15,826,953	203,032	13,761,691	7,434	1,333,000	31,132,110
Electrical products.....	23,057,649	378,336	9,358,034	220,497	274,000	33,288,516
Non-metallic mineral products.....	799,450	954,469	98,163	—	—	1,852,082
Petroleum and coal products.....	7,407,713	—	42,121	133,632	—	7,583,466
Chemicals and chemical products.....	21,931,396	1,779,624	738,949	—	—	24,449,969
Other manufacturing (incl. tobacco and tobacco products, leather products, clothing and knitting mills, and miscellaneous).....	4,634,575	42,000	2,315,200	633,691	—	7,625,466
Transportation, storage, commun- ication and other utilities.....	4,004,545	—	25,000	—	—	4,029,545
Other non-manufacturing (incl. the construction industry, scientific and engineering services and trade associations).....	360,482	2,463,924	265,930	1,361,398	183,992	4,635,726
Totals.....	118,340,006	7,096,980	28,199,436	2,780,888	3,753,543	160,170,853
Percentage of Total Funds.....	73.9	4.4	17.6	1.7	2.3	100.0

Section 6.—Federal Government Expenditures on Scientific Activities

Biennial surveys carried out by the DBS give information on Federal Government expenditures on scientific activities for the years ended Mar. 31, 1959-65. Each survey covers the actual costs of the preceding year and the estimated expenditures for the current year incurred by the physical and life sciences; the social and psychological sciences are not included. For purposes of the survey, "scientific activities" include scientific research and development, scientific data collection, scientific information and scientific scholarships. Data are also compiled on capital expenditures on plant for scientific activities and on personnel employed in research and development.

As shown in Table 6, total 1962-63 costs of scientific activities were slightly lower than those incurred in 1961-62 but estimates indicate a rise of 16 p.c. in 1963-64 and of 12.5 p.c. in 1964-65. Among the departments and agencies, the National Research Council records the greatest increase during the period, its 1964-65 expenditures of \$62,600,000 being 56.1 p.c. higher than those for 1961-62. The departments and agencies listed in Table 6 accounted for 92 p.c. of the Federal Government's expenditure on scientific activities in 1958-59 but their relative share will decrease to 80 p.c. by 1964-65. During the latest year, each of six other departments—Industry, Fisheries, Forestry, National Health and Welfare, Northern Affairs and National Resources, and Transport—reported its intention to spend more than \$5,000,000 on scientific activities.

Federal expenditures on scientific activities are classified in greater detail in Table 7 for the years ended Mar. 31, 1963 and 1965. In this table, expenditures by the Department of National Defence, which make up almost one quarter of the total, are shown separately.

6.—Summary Statistics of Federal Government Expenditures on Scientific Activities, Years Ended Mar. 31, 1962-65

(Millions of dollars)

Activity and Department or Agency	1961-62 ¹	1962-63	1963-64 ¹	1964-65 ¹
Activity—				
Conduct of research and development, including grants-in-aid of research.....	192.7	188.9	219.6	243.0
Capital expenditures on plant for scientific activities.....	37.0	28.9	36.3	45.9
Scientific data collection.....	21.1	25.0	26.7	27.9
Scientific information.....	5.6	9.7	10.1	11.2
Scholarship and fellowship programs.....	2.5	3.1	3.9	5.6
Totals, Scientific Activities.....	258.9	255.6	296.6	333.6
Department or Agency—				
Agriculture (incl. Grain Research Laboratory).....	32.1	29.6	30.6	33.7
Atomic Energy (incl. Atomic Energy Control Board and Atomic Energy of Canada Ltd.).....	40.7	39.4	46.5	54.7
Mines and Technical Surveys (incl. Dominion Coal Board).....	39.9	39.4	38.9	40.9
National Research Council (incl. Medical Research Council).....	40.1	44.7	52.5	62.6
National Defence—				
Armed Forces.....	32.1	26.1	30.2	36.8
Defence Research Board.....	34.7	31.8	38.5	39.3
Others.....	39.3	44.6	59.4	65.6
Totals, Departments and Agencies.....	258.9	255.6	296.6	333.6

¹ Estimated.

7.—Federal Government Expenditures on Scientific Activities by Department or Agency, Years Ended Mar. 31, 1963 and 1965

Department or Agency	1962-63				1964-65 ¹			
	Conduct of Research and Development	Other Scientific Activities	Capital Expenditures	Total Funds Applied	Conduct of Research and Development	Other Scientific Activities	Capital Expenditures	Total Funds Applied
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Department of Agriculture (incl. Grain Research Laboratory)....	25,128	948	3,523	29,599	26,463	1,008	6,229	33,700
Atomic Energy (incl. Atomic Energy Control Board and Atomic Energy of Canada Ltd.)..	29,963	90	9,349	39,402	36,797	50	17,807	54,654
Department of Defence Production—								
Department of Industry.....	8,000	—	—	8,000	19,500	—	—	19,500
Department of Fisheries.....	7,948	1	2,358	10,207	8,665	5	2,293	10,963
Department of Forestry.....	7,104	1,639	642	9,385	7,948	1,874	2,863	12,685
Medical Research Council.....	3,644	724	—	4,368	5,354	1,680	—	7,034
Department of Mines and Technical Surveys.....	11,887	20,351	7,197	39,435	12,795	22,893	5,225	40,913
Department of National Health and Welfare.....	5,396	589	961	6,946	5,583	919	822	7,324
National Research Council.....	34,225	4,188	1,949	40,362	43,896	6,144	5,487	55,527
Department of Northern Affairs and National Resources.....	1,266	2,437	398	4,101	2,440	2,848	598	5,886
Department of the Secretary of State.....	170	2,819	7	2,996	175	3,192	—	3,367
Department of Transport.....	1,277	209	348	1,834	4,529	220	591	5,340
Department of Veterans Affairs....	410	—	—	410	439	—	—	439
Other civilian departments or agencies.....	616	3	5	624	276	3	8	287
Totals, excluding National Defence.....	137,034	33,998	26,737	197,769	174,860	40,836	41,923	257,619
Department of National Defence...	51,885	3,803	2,190 ²	57,878	68,168	3,917	3,940 ²	76,025
Armed Forces.....	22,301	3,664	96 ²	26,061	30,882	3,750	2,135 ²	36,767
Defence Research Board.....	29,584	139	2,094	31,817	37,286	167	1,805	39,258
Totals, All Departments and Agencies.....	188,919	37,801	28,927	255,647	243,028	44,753	45,863	333,644

¹ Estimated.² Capital expenditures by two of the three Services are unavailable.

About three quarters of the payments made by the Federal Government on scientific activities are for the conduct of research and development. Although the Government continues to perform most of this research within its own establishments, its support of outside research is increasing; in 1961-62 intramural expenditures accounted for 80 p.c. of the total but by 1964-65 this percentage will have fallen to about 69. The proportion performed by Canadian industry, which was 11 p.c. in 1961-62, will have increased to 20 p.c. by 1964-65, and that performed in Canadian universities will have increased from 7 p.c. to 10 p.c. in the same comparison.

8.—Federal Government Expenditures on the Conduct of Research and Development, Years Ended Mar. 31, 1962-65

(Millions of dollars)

Performing Organization	1961-62 ¹	1962-63	1963-64 ¹	1964-65 ¹
Reporting department or agency	154.5	148.9	159.8	167.1
Profit organizations	20.8	20.2	36.8	48.1
Educational institutions and individuals at such institutions ..	14.0	16.9	19.0	24.4
Others (incl. non-profit organizations, other governments and foreign recipients)	3.4	2.9	4.0	3.4
Totals, Expenditures	192.7	188.9	219.6	243.0

¹ Estimated.

As shown in Table 9, the proportion of government funds allotted to the support of research and development in the physical sciences increased over the period 1962-63 to 1964-65 from about 70 p.c. to 74 p.c., and engineering continued to receive more than 55 p.c. of these funds. Within the life sciences, more than one half of the research and development expenditures continue to support the agricultural sciences. Table 9 also classifies research and development expenditures by area of investigation. It is noteworthy that expenditures in the field of space travel and communications increased from 0.9 p.c. of the total in 1962-63 to 3 p.c. in 1964-65. In the latter year, approximately 16 p.c. of the research and development expenditures will be allotted to nuclear science research and 35 p.c. to military research.

9.—Federal Government Expenditures on the Conduct of Research and Development, by Scientific Field and Area of Investigation, Years Ended Mar. 31, 1963 and 1965

(Millions of dollars)

Scientific Field	1962-63	1964-65 ¹	Scientific Field and Area of Investigation	1962-63	1964-65 ¹
Scientific Field			Scientific Field—concl.		
Physical Sciences	132.7	179.1	Life Sciences	56.2	63.9
Engineering	73.8	105.3	Agricultural sciences	30.9	33.1
Aeronautical	11.5	20.6	Biological sciences	14.4	17.7
Chemical	2.5	3.1	Medical sciences	10.9	13.1
Civil	2.4	2.4			
Electrical and electronic	19.2	28.2			
Mechanical	9.6	17.8			
Other	28.6	33.2			
Astronomy	1.5	1.8			
Chemistry	11.9	15.2			
Geology and other earth sciences ..	7.6	9.0			
Metallurgy	3.1	3.6			
Meteorology	1.5	2.0			
Oceanography	3.6	3.9			
Physics, nuclear	7.0	10.0			
Physics, non-nuclear	18.7	22.2			
Other	4.0	6.1			
			Totals, All Scientific Fields	188.9	243.0
			Area of Investigation		
			Nuclear science	31.5	38.6
			Space travel and communications ..	1.7	7.3
			Military science	60.2	84.9
			Other projects	95.5	112.2

¹ Estimated.

CHAPTER IX.—CRIME AND DELINQUENCY*

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

Section 1.—Canadian Criminal Law and Procedure†

The system under which justice is administered in a State is never rigid. To have it so would be neither expedient nor indeed possible. A judicial system must grow and adapt itself to the requirements of the people, and the exact limits of the powers of different legislative bodies require continued definition.

The criminal law of Canada has as its foundation the criminal common law of England built up through the ages and consisting first of customs and usages and later expanded by principles enunciated by generations of judges. There is no statutory declaration of the introduction of English criminal law into those parts of Canada that are now the Provinces of New Brunswick, Nova Scotia and Prince Edward Island. Its introduction there depends upon a principle of the common law itself by which English law was declared to be in force in uninhabited territory discovered and planted by British subjects, except in so far as local conditions made it inapplicable. The same may be said of Newfoundland although the colony dealt with the subject in a statute of 1837. In Quebec its reception depends upon a Royal Proclamation of 1763 and the Quebec Act of 1774. In each of the other provinces and in the Yukon and Northwest Territories the matter has been dealt with by statute.

The judicial systems of the provinces as they exist today are based upon the British North America Act of 1867. Sect. 91 of the Act provides that "The exclusive legislative authority of the Parliament of Canada extends to . . . the criminal law, except the constitution of courts of criminal jurisdiction but including the procedure in criminal matters". By Sect. 92 (14), the legislature of the province exclusively may make laws in relation to "the administration of justice in the province, including the constitution, maintenance and organization of provincial courts, both of civil and criminal jurisdiction and including procedure in civil matters in its courts". The Parliament of Canada may, however (Sect.

* Except as otherwise credited, this Chapter has been revised in the Judicial Section, Health and Welfare Division, Dominion Bureau of Statistics.

† Prepared by the Criminal Law Section, Department of Justice, Ottawa.

101), establish any additional courts for the better administration of the laws of Canada. It should be noted that the Statute of Westminster, 1931 effected important changes, particularly by abrogating the Colonial Laws Validity Act, 1865 (Br.) and confirming the right of a dominion to make laws having extraterritorial operation. Particulars of the federal judiciary are given in Chapter II, pp. 91-92, and provincial judiciaries are dealt with briefly at p. 93; more detailed information on provincial judiciaries is given in the 1954 Year Book, pp. 47-55.

At the time of Confederation each of the colonies affected had its own body of statutes relating to the criminal law. In 1869, in an endeavour to assimilate them into a uniform system applicable throughout Canada, Parliament passed a series of Acts, some of which dealt with offences of special kinds and others with procedure. Most notable of the latter was the Criminal Procedure Act, but other Acts provided for the speedy trial or summary trial of indictable offences, the powers and jurisdiction of justices of the peace in summary conviction matters and otherwise, and the procedure in respect of juvenile offenders.

Codification of the criminal law through a Criminal Code Bill founded on the English draft code of 1878, Stephen's *Digest of Criminal Law*, Burbidge's *Digest of the Canadian Criminal Law*, and the relevant Canadian statutes was brought about by the Minister of Justice, Sir John Thompson, in 1892. This Bill became the Criminal Code of Canada and came into force on July 1, 1893. It must be remembered, however, that the Criminal Code was not exhaustive of the criminal law. It was still necessary to refer to English law in certain matters of procedure and it was still possible to prosecute for offences at common law. Moreover, Parliament has declared offences against certain other Acts, e.g., the Narcotic Control Act, to be criminal offences and the same was done in the Defence of Canada Regulations and the Wartime Prices and Trade Board Regulations (neither now in force) promulgated under the authority of the War Measures Act.

It is often difficult to distinguish between 'law' and 'procedure'. Procedure may be interpreted to relate simply to the organic working of the courts but, in a wider sense it may also affect the rights or alter the legal relations arising out of any given state of facts. For present purposes it will be useful to note that writers on jurisprudence describe law as being substantive or adjective. "Substantive law is concerned with the ends which the administration of justice seeks; procedural (adjective) law deals with the means and instruments by which these ends are to be obtained."* With reference to the criminal law, the former may be taken to include the provisions concerning criminal responsibility the definition of 'offences' and the punishment for those offences, and the latter to include provisions for enforcement, e.g., powers to search and to arrest, for the modes of trial and for the proof of facts. Broadly speaking, the Criminal Code observes the distinction although it might appear that the provisions for preventive detention of habitual criminal and dangerous sexual offenders partake of the nature of both classes.

An examination and study of the Criminal Code was authorized by Order in Council dated Feb. 3, 1949, and the Commission assigned the task of revising the Code presented its report with a draft Bill in February 1952. After coming before successive sessions of Parliament it was finally enacted on June 15, 1954 and the new Criminal Code (SC 1953-54 c. 51) came into effect on Apr. 1, 1955. A short outline of the system that existed under the repealed Code together with the major revisions effected by the new Code is given in the 1955 Year Book, pp. 295-298.

Since the new Code came into force several amendments have been made, for the most part in relation to procedure. Among the most notable of these, as well in point of procedure as of substance, are: an amendment in 1956 providing that motions for leave to appeal to the Supreme Court of Canada in criminal cases should be heard by a quorum (at least five) of judges of that Court instead of a single judge; amendments effected by SC 1959, c. 41, providing a statutory extension of the definition of "obscenity" and makin

* Salmond on *Jurisprudence*, 7th Edition, p. 496.

provision for seizure and condemnation of offending material without a charge necessarily being laid against any person; extensive amendments relating to the allowing of time for payment of fines; amendments dealing with offences committed in aircraft in flight over the high seas; an amendment forbidding the publication in a newspaper or broadcast of a report that any admission or confession was tendered in evidence at a preliminary inquiry or a report of the nature of such admission or confession unless the accused has been discharged or, if the accused has been committed for trial, the trial has ended.

The Parole Act (SC 1958, c. 38), brought into force on Feb. 15, 1959, revises the parole system and provides for the establishment of a National Parole Board (see pp. 436-437).

It is most important to note that in 1960 (SC 1960, c. 44) Parliament enacted what is known as the Canadian Bill of Rights. Although the Act sets out further details, its general scope appears in Sect. 1, which reads as follows:—

"1. It is hereby recognized and declared that in Canada there have existed and shall continue to exist without discrimination by reason of race, national origin, colour, religion or sex, the following human rights and fundamental freedoms, namely,

- (a) the right of the individual to life, liberty, security of the person and enjoyment of property, and the right not to be deprived thereof except by due process of law;
- (b) the right of the individual to equality before the law and the protection of the law;
- (c) freedom of religion;
- (d) freedom of speech;
- (e) freedom of assembly and association; and
- (f) freedom of the press."

Although the Bill of Rights has been invoked on various occasions, the courts have not held it to affect the operation of the Criminal Code.

In 1961 (SC 1960-61, cc. 43-44), the offence of murder was divided into capital and non-capital. The death penalty was abolished in relation to the offence of non-capital murder. Also in 1961 the term *criminal sexual psychopath* was dropped and the term *dangerous sexual offender* substituted. More detailed information is available in the 1962 Year Book, pp. 354-355.

Section 2.—Adult Offenders and Convictions

Offences may be classified under two headings, "indictable offences" and "offences punishable on summary conviction". Indictable offences are grouped in two main categories: (1) offences that violate the Criminal Code and (2) offences against federal statutes. These include the graver crimes. Offences punishable on summary conviction—those not expressly made indictable—include offences against the Criminal Code, provincial statutes and municipal by-laws. It is debatable how far some summary conviction offences are of a criminal nature and whether their increase indicates an increase in crime. Many are breaches of municipal by-laws and contrary to public safety, health and comfort, as, for example, parking violations or practising trades without licence but, on the other hand, summary conviction offences may include such serious charges as assault and contributing to juvenile delinquency.

The following Subsection 1 deals with adults convicted of indictable offences, Subsection 2 with young adult offenders convicted of indictable offences, Subsection 3 with convictions for summary conviction offences and Subsection 4 with appeals.

Subsection 1.—Adults Convicted of Indictable Offences

Statistics of indictable crimes are based on persons, so that it may be possible to evaluate the population engaged in prohibited activities and to help in the treatment of anti-social behaviour in terms of subject-centred action. In the present counting system, while individuals may be charged with more than one offence, only one offence is

tabulated for each person. This offence is selected according to the following criteria: (1) if the person were tried on several charges, the offence selected is that for which proceedings were carried to the farthest stage—conviction and sentence; (2) if there were several convictions, the offence selected is that for which the heaviest punishment was awarded; (3) if the final result of proceedings on two or more charges were the same, the offence selected is the more serious one, as measured by the maximum penalty allowed by the law; (4) if a person were prosecuted for one offence and convicted of another—for example, charged with murder and convicted of manslaughter—the offence selected is the one for which the person was convicted.

In 1963 there were 47,616 adults charged with 86,674 indictable offences, of whom 42,914 were found guilty of 78,518 offences. In the previous year there were 42,935 adults charged with 81,181 indictable offences, of whom 38,663 were found guilty of 71,507 offences.

1.—Persons Charged and Persons Convicted of Indictable Offences, with Ratio per 100,000 Population 16 Years of Age or Over, by Province, 1962 and 1963

Province or Territory	Persons Charged		Persons Convicted				Persons Convicted per 100,000 Population 16 Years of Age or Over	
			1962		1963		1962	1963
	No.	No.	No.	p.c.	No.	p.c.	No.	No.
Newfoundland.....	951	902	905	95.2	872	96.7	343	322
Prince Edward Island.....	81	67	75	92.6	64	95.5	114	90
Nova Scotia.....	1,539	1,684	1,353	87.9	1,516	90.0	287	314
New Brunswick.....	1,218	1,315	1,194	98.0	1,283	97.6	327	331
Quebec.....	8,559	10,667	7,698	90.0	9,690	90.8	228	283
Ontario.....	15,872	17,079	13,764	86.7	14,785	86.6	329	341
Manitoba.....	2,347	2,344	2,191	93.4	2,231	95.2	357	351
Saskatchewan.....	1,770	1,986	1,675	94.6	1,869	94.1	282	311
Alberta.....	4,467	4,664	4,246	95.1	4,383	94.0	493	490
British Columbia.....	5,870	6,645	5,313	90.5	5,965	89.8	478	522
Yukon and Northwest Territories.....	261	263	249	95.4	256	97.3	1,092	1,133
Canada.....	42,935	47,616	38,663	90.0	42,914	90.1	324	353

Table 2 classifies indictable offences by type of offence for 1962 and 1963. Class I covers offences against the person and in 1963 there were 5,786 males and 240 female convicted in this category, mostly for assaults of various kinds. Classes II to IV deal with offences against property. Thefts predominate among the offences in these classes, and breaking and entering and robbery, serious crimes which involve acts of violence, are the next most numerous. Class V deals with offences relating to currency and Class VI with miscellaneous offences; among the latter, the most numerous convictions are for offence connected with gaming, betting and lotteries. In 1963 there were 288 men and 122 women convicted under federal statutes of whom 191 men and 105 women were offenders under the Narcotic Control Act.

2.—Persons Charged and Convicted of Indictable Offences, by Class of Offence, 1962 and 1963

Class of Offence	1962			1963			Increase or Decrease in Persons Convicted
	Persons Charged	Persons Convicted		Persons Charged	Persons Convicted		
		M.	F.		M.	F.	
	No.	No.	No.	No.	No.	No.	p.c.
Criminal Code							
Class I.—Offences against the Person.....	7,027	5,532	252	7,245	5,786	240	+ 4.2
Abduction and kidnapping.....	67	44	2 ¹	50	31	—	—32.6
Assault, causing bodily harm, common, on police and obstruction....	4,756	3,803	172	4,854	3,918	169	+ 2.8
Offences against females ¹	1,088	836	21	1,069	825	27	— 0.6
Causing death by criminal negligence, ² manslaughter and murder.	234	159	5	244	142	9	— 7.9
Attempted murder, causing bodily harm and danger.....	219	151	14	204	144	13	— 4.8
Duties tending to preservation of life.....	36	23	—	24	21	—	— 8.7
Other offences against the person...	627	516	38	800	705	22	+31.2
Class II.—Offences against Property with Violence.....	8,362	7,656	120	9,265	8,561	140	+11.9
Breaking and entering a place, extortion and robbery.....	8,362	7,656	120	9,265	8,561	140	+11.9
Class III.—Offences against Property without Violence.....	21,279	17,301	2,213	23,564	18,985	2,701	+11.1
Fraud and false pretences.....	2,897	2,289	261	2,943	2,340	287	+ 3.0
Having in possession.....	2,261	1,866	97	2,674	2,182	112	+16.9
Theft.....	16,121	13,146	1,855	17,947	14,463	2,302	+11.8
Class IV.—Malicious Offences against Property.....	1,001	803	54	1,119	944	43	+15.2
Arson and other fires.....	189	129	23	157	118	16	—11.8
Other interference with property....	812	674	31	962	826	27	+21.0
Class V.—Forgery and Other Offences Relating to Currency....	1,323	1,133	128	1,304	1,111	131	— 1.5
Forgery and uttering forged documents.....	1,218	1,050	121	1,220	1,045	131	+ 0.4
Offences relating to currency.....	105	83	7	84	66	—	—26.7
Class VI.—Other Offences.....	3,522	2,834	276	4,623	3,503	359	+24.2
Criminal negligence in operation of motor vehicles.....	48	40	—	51	43	—	+ 7.5
Driving while ability to drive is impaired.....	262	248	3	686	616	12	+150.2
Driving while intoxicated.....	6	6	—	27	26	—	+33.3
Gaming, betting and lotteries.....	606	479	42	774	617	64	+30.7
Keeping bawdy houses.....	212	36	147	238	35	174	+14.2
Various other offences.....	2,388	2,025	84	2,847	2,166	109	+ 7.9
Totals, Criminal Code.....	42,514	35,259	3,043	47,120	38,890	3,614	+11.0
Federal Statutes							
Narcotic Control Act.....	335	182	100	376	191	105	+ 5.0
Other statutes.....	86	72	7	120	97	17	+44.3
Totals, Federal Statutes.....	421	254	107	496	288	122	+13.6
Grand Totals.....	42,935	35,513	3,150	47,616	39,178	3,736	+11.0

¹ Includes abortion, indecent assault on female, sexual intercourse and attempt, incest, procuring, rape, attempted rape and seduction.

² Includes causing death in the operation of a motor vehicle or otherwise.

Table 3 shows that 47.0 p.c. of the persons convicted of indictable offences in 1963 had not gone beyond elementary school grades in education, 53.0 p.c. were 24 years of age or younger, 33.5 p.c. were between the ages of 25 and 44, and 78.8 p.c. lived in urban centres. Of these offenders, 91.3 p.c. were males, 87.3 p.c. were born in Canada, 62.3 p.c. were unmarried, 21.2 p.c. were recorded as labourers and 11.4 p.c. had no remunerative employment.

3.—Persons Convicted of Indictable Offences classified by Occupation, Marital Status, Sex, Birthplace, etc., 1962 and 1963

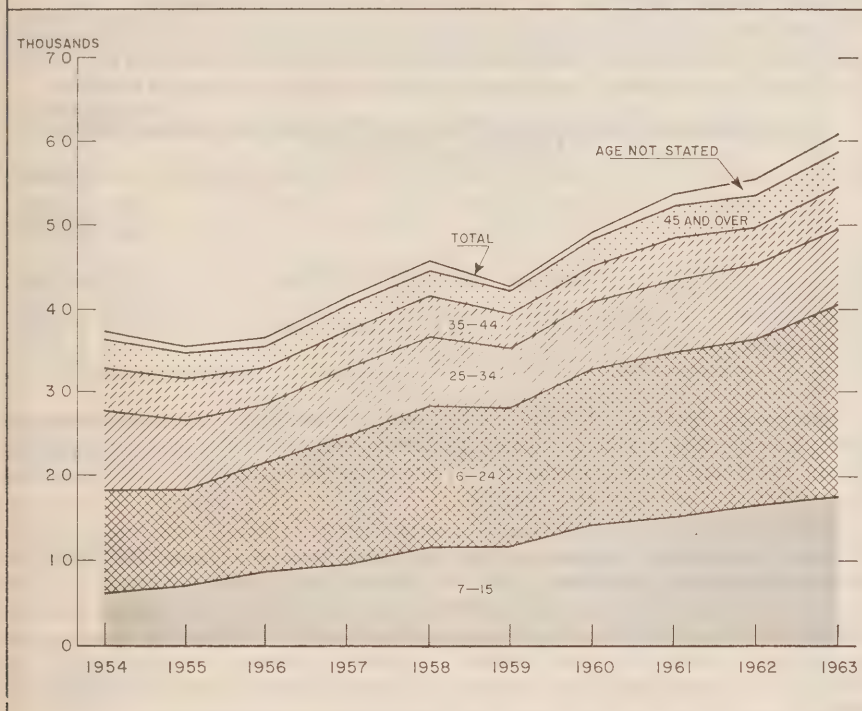
Item	1962	1963	Item	1962	1963
No.	No.	No.	No.	No.	No.
Total Persons Convicted	33,663	42,914	SEX		
TYPE OF OCCUPATION			Male.....	35,515	39,178
Agriculture.....	1,594	1,637	Female.....	3,148	3,736
Armed Services.....	476	315	EDUCATIONAL STATUS		
Clerical.....	1,216	1,195	Unable to read or write.....	517	402
Commercial and managerial.....	2,296	2,591	Elementary.....	18,004	19,769
Construction.....	4,147	4,552	High school.....	14,710	16,637
Finance.....	74	108	Superior.....	483	501
Fishing, trapping and logging.....	1,518	1,537	Grade not stated.....	482	747
Labourer.....	8,098	9,080	Not given.....	4,467	4,858
Manufacturing and mechanical.....	3,653	4,097	AGE		
Mining.....	514	498	16 to 19 years.....	11,337	13,456
Service—			20 to 24 years.....	8,504	9,297
Domestic.....	1,026	1,075	25 to 44 years.....	13,350	14,391
Personal.....	1,218	1,363	45 years or over.....	3,600	3,878
Professional.....	443	399	Not given.....	1,572	1,892
Public and protective.....	79	71	BIRTHPLACE		
Other.....	126	135	Canada.....	33,634	37,485
Student.....	2,529	3,375	British Isles and other Common-		
Transportation and communica-			wealth.....	923	886
tions.....	2,775	2,838	United States.....	307	316
Unemployed and retired (incl.			Europe.....	1,874	1,929
housewives).....	4,388	4,902	Asia.....	82	91
Not given.....	2,493	3,146	Other foreign countries.....	26	17
MARITAL STATUS			Not given.....	1,817	2,190
Single.....	23,979	26,715	RESIDENCE		
Married.....	10,482	11,555	Urban centres.....	30,008	33,815
Widowed.....	408	442	Rural districts.....	7,245	7,299
Divorced.....	343	386	Indeterminate.....	681	718
Separated.....	1,601	1,787	Not given.....	729	1,082
Not given.....	1,850	2,029			

Female Offenders.—There were 3,736 female offenders convicted of indictable offences in 1963 compared with 3,148 in 1962. Of these offenders, Ontario accounted for 1,470, Quebec for 717 and British Columbia for 560. The ratio of female offenders convicted to total convictions moved upward from 8.1 p.c. in 1962 to 8.7 p.c. in 1963 with a provincial range from 1.6 p.c. in Prince Edward Island to 10.7 p.c. in Manitoba.

4.—Females Convicted of Indictable Offences, by Province, 1962 and 1963

Province or Territory	Females Convicted		Females Convicted to Total Convictions	
	1962	1963	1962	1963
	No.	No.	p.c.	p.c.
Newfoundland.....	64	65	7.1	7.5
Prince Edward Island.....	2	1	2.7	1.6
Nova Scotia.....	78	81	5.8	5.3
New Brunswick.....	48	70	4.0	5.5
Quebec.....	430	717	5.6	7.4
Ontario.....	1,270	1,470	9.2	9.9
Manitoba.....	221	238	10.1	10.7
Saskatchewan.....	112	130	6.7	7.0
Alberta.....	393	387	9.3	8.8
British Columbia.....	520	560	9.8	9.4
Yukon and Northwest Territories.....	10	17	4.0	6.6
Canada.....	3,148	3,736	8.1	8.7

PERSONS CONVICTED OF INDICTABLE OFFENCES
BY CERTAIN AGE GROUPS, 1954-63



Multiple Convictions.—Table 5 shows the number of persons having more than one conviction at a court appearance for the years 1959 to 1963. Multiple convictions occur most often in cases of forgery and uttering, false pretences, theft, having in possession, and breaking and entering.

5.—Persons Convicted of More than One Offence at the Time of Trial compared with Persons Convicted of One Offence, 1959-63

Item	1959	1960	1961	1962	1963
	No.	No.	No.	No.	No.
Persons Convicted of—					
2 offences.....	4,396	4,940	5,463	5,669	6,244
3 offences.....	1,515	1,904	2,040	2,046	2,155
4 offences.....	816	933	1,080	1,023	1,164
5 offences.....	474	569	593	594	615
6 offences.....	298	365	357	389	407
7 offences.....	215	256	279	262	276
8 offences.....	166	196	207	194	217
9 offences.....	109	155	146	140	170
10 offences.....	69	109	125	118	123
11 to 20 offences.....	334	392	423	416	491
21 offences or over.....	113	119	144	151	169
Totals, Convicted of More than One Offence.....	8,505	9,938	10,857	11,002	12,031
Totals, Convicted of One Offence.....	22,587	25,505	27,822	27,661	30,883
Grand Totals.....	31,092	35,443	38,679	38,663	42,914

Disposition of Cases and Previous Convictions.—As shown in Table 1, p. 420, of all suspects before the courts for indictable offences in 1963, 90.1 p.c. were adjudged guilty. There was, however, considerable variation among the provinces in this respect, the proportion ranging from 86.6 p.c. in Ontario to 97.6 p.c. in New Brunswick.

Table 6 shows that of the 42,914 persons convicted in 1963, 26.2 p.c. had no previous conviction, 14.5 p.c. had previously been found guilty of one offence and 34.2 p.c. had two or more earlier convictions. Court records for the other 25.1 p.c. were not obtained.

6.—Persons Charged with Indictable Offences, Disposition of Cases and Previous Convictions, 1962 and 1963

Item	1962	1963	Item	1962	1963
	No.	No.		No.	No.
Charged.....	42,935	47,616	Males convicted.....	35,515	39,178
Acquitted.....	3,962	4,397	Females convicted.....	3,148	3,736
Disagreement of jury.....	1	7	First conviction.....	10,269	11,222
Stay of proceedings.....	243	195	Second conviction.....	5,479	6,213
No Bill.....	20	47	Reiterated convictions.....	13,405	14,691
Detained because of insanity.....	46	56	Not given.....	9,510	10,788

Sentences, Method of Trial and Court Proceedings.—Table 7 summarizes the sentences given for indictable offences, Table 8 shows the method of trial and disposition of cases, and Table 9 shows persons charged and convicted of indictable crimes according to trial court.

Two kinds of sentences maintain for a certain period of time a relationship between the person dealt with by the court and the legal institutions of a community—probation and commitment to an institution. There are several types of institutions to which a person can be committed, such as penitentiaries, reformatories, gaols and industrial farms. Theoretically, every institution has a specific purpose which is supposed to be taken into account when arriving at a legal decision. In practice, however, the availability of an institution in a given community is a factor in determining the decision rendered by the court.

7.—Sentences Given for Indictable Offences, by Province, 1963

Sentence	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Option of fine.....	247	10	384	390	1,954	3,595	546	409	1,267	1,249	47	10,098
Gaol—												
Under one year.....	232	19	385	316	3,127	3,247	544	775	1,298	2,064	162	12,169
One year or over.....	71	1	17	62	351	540	171	142	597	603	11	2,566
Reformatory.....	—	—	8	6	142	1,771	44	—	—	106	—	2,077
Penitentiary—												
Under two years.....	—	—	2	15	3	74	5	2	14	12	—	127
Two years and under five.....	41	12	185	120	811	770	158	117	220	408	5	2,847
Five years and under ten.....	1	—	7	7	113	107	5	6	30	59	—	335
Ten years and under four-teen.....	—	—	3	—	31	16	1	1	1	8	—	61
Fourteen years or over.....	—	—	—	—	16	8	—	1	—	4	—	29
Life.....	—	—	—	1	10	8	—	2	4	5	1	35
Preventive.....	—	—	—	—	2	1	4	—	4	5	—	7
Death.....	—	—	—	1	6	2	—	—	1	2	—	11
Suspended sentence without probation.....	106	22	197	166	1,759	980	408	215	426	546	29	4,854
Suspended sentence with probation.....	174	—	328	199	1,365	3,666	345	199	525	896	1	7,698
Totals.....	872	64	1,516	1,253	9,690	14,785	2,231	1,869	4,383	5,965	256	42,914

8.—Method of Trial of Persons Charged with Indictable Offences, showing Disposition of Cases, by Sex and by Province, 1963

Method of Trial and Sex	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
By Judge and Jury—												
Convicted.....M.	15	2	29	9	132	283	33	37	13	118	2	673
F.	1	—	1	—	5	13	1	1	—	3	1	26
Acquitted.....M.	4	1	7	6	17	135	10	15	2	46	2	245
F.	—	—	2	—	1	16	1	—	—	4	1	25
Detained because of insanity.....M.	—	—	—	2	4	2	1	—	1	5	—	15
F.	—	—	—	—	—	—	—	—	—	1	—	1
Disagreement of jury..M.	—	—	2	—	—	3	—	1	—	1	—	7
Stay of proceedings...M.	—	—	—	—	—	2	—	1	—	6	—	9
F.	—	—	—	—	—	—	—	—	—	4	—	4
No Bill.....M.	—	—	—	—	—	38	2	—	—	—	—	40
F.	—	—	—	—	—	9	—	—	—	—	—	9
By a Judge without Jury—												
Convicted.....M.	1	6	51	10	1,082	269	23	72	238	172	1	1,925
F.	—	1	—	—	46	13	3	3	4	18	—	88
Acquitted.....M.	—	1	10	1	322	86	7	23	40	42	1	533
F.	—	—	1	—	16	10	—	1	1	5	—	34
Detained because of insanity.....M.	—	—	—	—	—	1	—	—	1	—	—	2
F.	—	—	—	—	—	—	—	—	1	—	—	1
Stay of proceedings...M.	—	—	—	—	—	1	1	2	12	8	—	24
F.	—	—	—	—	—	—	—	—	—	2	—	2
By a Magistrate with Consent—												
Convicted.....M.	485	18	775	578	4,099	7,377	940	906	1,965	2,459	124	19,726
F.	20	—	16	12	141	449	67	35	96	203	6	1,045
Acquitted.....M.	12	—	70	8	272	1,055	12	22	81	245	1	1,778
F.	—	—	3	—	10	68	2	3	5	33	—	124
Detained because of insanity.....M.	—	—	2	1	7	2	—	—	4	9	—	25
F.	—	—	—	—	1	—	—	—	—	—	—	1
Stay of proceedings...M.	—	—	—	—	2	—	36	—	—	42	—	80
F.	—	—	—	—	—	—	2	—	—	15	—	17
By a Magistrate, Absolute Jurisdiction—												
Convicted.....M.	306	37	580	616	3,660	5,386	997	724	1,780	2,656	112	16,854
F.	44	—	64	58	525	995	167	91	237	336	10	2,577
Acquitted.....M.	12	1	66	14	290	773	15	40	119	151	2	1,483
F.	2	—	5	—	32	90	2	9	12	23	—	175
Detained because of insanity.....M.	—	—	—	—	3	3	—	—	1	2	—	9
F.	—	—	—	—	—	—	—	—	1	1	—	2
Stay of proceedings...M.	—	—	—	—	—	—	15	—	—	27	—	42
F.	—	—	—	—	—	—	7	—	—	8	—	15
Totals, Persons Charged.	902	67	1,684	1,315	10,667	17,079	2,344	1,986	4,664	6,645	263	47,616
Totals, Persons Con- victed.....	872	64	1,516	1,283	9,690	14,785	2,231	1,869	4,383	5,965	256	42,914

9.—Persons Charged and Convicted of Indictable Offences according to Trial Court, by Province, 1962 and 1963

Province or Territory and Item	1962					1963				
	Persons Charged and Convicted by—					Persons Charged and Convicted by—				
	Police Magistrate and Municipal Court	Juvenile or Family Court	County Court	Higher Court	Total	Police Magistrate and Municipal Court	Juvenile or Family Court	County Court	Higher Court	Total
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland—										
Charged.....	860	84	1	6	951	839	42	1	20	902
Convicted.....	819	82	1	3	905	813	42	1	16	872
Prince Edward Island—										
Charged.....	70	—	11	—	81	66	—	9	2	67
Convicted.....	66	—	9	—	75	55	—	8	1	64
Nova Scotia—										
Charged.....	1,450	7	50	32	1,539	1,572	9	64	39	1,684
Convicted.....	1,285	7	41	20	1,353	1,427	8	53	28	1,516
New Brunswick—										
Charged.....	1,195	3	6	14	1,218	1,283	4	11	17	1,315
Convicted.....	1,179	3	4	8	1,194	1,260	4	10	9	1,283
Quebec—										
Charged.....	5,823	1,304	1,321	113	8,561	7,319	1,723	1,480	145	10,667
Convicted.....	5,320	1,292	983	94	7,698	6,707	1,718	1,142	123	9,690
Ontario—										
Charged.....	14,970	79	688	131	15,868	16,117	81	707	174	17,079
Convicted.....	13,113	73	487	88	13,761	14,133	74	472	106	14,785
Manitoba—										
Charged.....	2,147	135	26	39	2,347	2,006	256	34	48	2,344
Convicted.....	2,004	134	21	32	2,191	1,916	255	26	34	2,231
Saskatchewan—										
Charged.....	1,639	4	85	42	1,770	1,828	2	106	50	1,986
Convicted.....	1,587	2	65	21	1,675	1,754	2	77	36	1,869
Alberta—										
Charged.....	4,163	30	38	236	4,467	4,308	43	49	264	4,664
Convicted.....	3,969	30	31	216	4,246	4,085	43	37	218	4,383
British Columbia—										
Charged.....	4,774	666	186	245	5,871	5,440	769	255	181	6,645
Convicted.....	4,333	645	137	198	5,313	4,902	752	197	114	5,965
Yukon and Northwest Territories—										
Charged.....	244	1	6	10	261	255	—	2	6	263
Convicted.....	236	1	5	7	249	252	—	1	3	256
Canada—										
Charged.....	37,335	2,313	2,418	868	42,934	41,023	2,929	2,718	946	47,616
Convicted.....	33,920	2,269	1,784	687	38,660	37,304	2,898	2,024	688	42,914

Subsection 2.—Young Adult Offenders (16-24 Years) Convicted of Indictable Offences

Attention has been focused in recent years on the needs of the young adult offenders of from 16-24 years of age who constitute a promising field for modern reception and diagnostic facilities equipped with educational, trade training and other formative disciplines. While young men and women in this age group account for under 18.7 p.c. of the total population 16 years of age or over, they form over half the criminal population

committing indictable offences. The group includes some of the most daring offenders who already may be experienced criminals as well as first offenders likely to be turned from crime by further education and training.

There were 22,753 young adult offenders in 1963, an increase of 2,914 over the previous year. Although each of the three age groups and both sexes contributed to the increase, almost half of it was in the male group 16-17 years of age.

10.—Young Adult Offenders, by Age Group, Sex and Province, 1962 and 1963

Year, Age Group and Sex	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1962												
16 - 17 years.....M.	142	12	262	190	1,526	1,906	186	254	491	770	12	5,751
F.	6	1	14	2	47	109	4	12	37	67	1	300
18 - 19 ".....M.	111	7	239	174	950	1,857	279	214	545	506	28	4,940
F.	14	—	10	5	50	120	29	18	46	52	1	345
20 - 24 ".....M.	217	7	316	250	1,688	2,702	460	394	897	938	60	7,929
F.	14	1	19	15	90	213	44	14	75	86	3	574
Totals, 1962.....	534	28	860	636	4,351	6,907	1,002	906	2,091	2,419	105	19,839
1963												
16 - 17 years.....M.	173	21	307	192	1,999	2,372	292	297	609	890	18	7,170
F.	9	—	10	10	79	166	18	22	44	54	—	412
18 - 19 ".....M.	136	13	254	186	1,235	1,991	292	237	523	603	25	5,495
F.	4	—	12	12	66	152	29	21	52	28	3	379
20 - 24 ".....M.	203	8	326	298	2,126	2,748	435	409	923	1,038	56	8,570
F.	8	—	12	12	159	260	45	15	78	131	7	727
Totals, 1963.....	533	42	921	710	5,664	7,689	1,111	1,001	2,229	2,744	109	22,753

11.—Young Adult Offenders Convicted of Indictable Offences, by Class of Offence and Sex, 1962 and 1963

Class of Offence	1962		1963	
	Males	Females	Males	Females
	No.	No.	No.	No.
Criminal Code				
Class I.—Offences against the Person	2,128	79	2,279	69
Abduction and kidnapping.....	20	—	15	—
Assault, causing bodily harm, common, on police and obstruction.....	1,522	58	1,583	54
Offences against females ¹	312	2	324	6
Causing death by criminal negligence, ² manslaughter and murder.....	56	2	55	—
Attempted murder, causing bodily harm and danger.....	57	5	46	3
Duties tending to preservation of life.....	—	—	5	—
Other offences against the person.....	161	12	251	6
Class II.—Offences against Property with Violence	5,275	75	6,074	94
Breaking and entering a place, extortion and robbery.....	5,275	75	6,074	94
Class III.—Offences against Property without Violence	9,073	863	10,496	1,104
Fraud and false pretences.....	532	105	580	116
Having in possession.....	916	50	1,128	52
Theft.....	7,625	708	8,788	936

¹ Includes abortion, indecent assault on female, sexual intercourse and attempt, incest, procuring, rape, attempted rape and seduction.

² Includes causing death in the operation of a motor vehicle or otherwise.

11.—Young Adult Offenders Convicted of Indictable Offences, by Class of Offence and Sex, 1962 and 1963—concluded

Class of Offence	1962		1963	
	Males	Females	Males	Females
	No.	No.	No.	No.
Criminal Code—concluded				
Class IV.—Malicious Offences against Property	479	16	591	14
Arson and other fires.....	55	3	57	3
Other interference with property.....	421	13	534	11
Class V.—Forgery and Other Offences Relating to Currency	411	52	440	71
Forgery and uttering forged documents.....	380	47	419	69
Offences relating to currency.....	31	5	21	2
Class VI.—Other Offences	1,208	88	1,309	113
Criminal negligence in operation of motor vehicles.....	21	—	25	—
Driving while ability to drive is impaired.....	37	—	90	3
Driving while intoxicated.....	—	—	5	—
Gaming, betting and lotteries.....	23	1	19	5
Keeping bawdy houses.....	7	50	7	61
Various other offences.....	1,120	37	1,163	49
Totals, Criminal Code	18,574	1,173	21,189	1,470
Federal Statutes				
Narcotic Control Act.....	39	47	35	47
Other statutes.....	8	—	11	1
Totals, Federal Statutes	47	47	46	48
Grand Totals	18,621	1,220	21,235	1,518

12.—Disposition of Sentences for Indictable Offences, by Sex, 1962 and 1963

Disposition of Sentences	1962				1963			
	16-24 Years		25 Years or Over		16-24 Years		25 Years or Over	
	M.	F.	M.	F.	M.	F.	M.	F.
	No.	No.	No.	No.	No.	No.	No.	No.
Suspended sentence.....	2,025	236	1,984	420	2,276	259	1,854	465
Probation.....	4,821	397	1,330	241	5,669	490	1,283	256
Fine.....	3,186	254	4,218	845	3,741	361	5,012	984
Gaol.....	5,968	265	6,892	326	6,650	311	7,363	411
Reformatory.....	1,214	49	615	39	1,400	80	545	52
Penitentiary.....	1,403	19	1,854	59	1,496	17	1,878	50
Death.....	4	—	9	—	3	—	8	—

Subsection 3.—Convictions for Summary Conviction Offences

Offences punishable on summary conviction are triable by magistrates and justices of the peace under Part XXIV of the Criminal Code (SC 1953-54, c. 51) or under the provincial summary conviction Acts as the case may be. Data relating to these offences are based on convictions; no information is available on either the number of persons involved in these offences or the number of charges. In these cases, following arrest or summons to appear in court, the accused person must be tried by a magistrate or justice of the peace without the intervention of a jury. Such cases are heard in police court with the minimum of delay.

13.—Convictions for Summary Conviction Offences, by Type, 1962 and 1963

Type of Offence	1962	1963	Increase or Decrease 1962-63
	No.	No.	p.c.
Criminal Code	92,111	99,892	+ 8.4
Attempts, conspiracies, accessories, counselling.....	228	266	+16.7
Attempt to commit suicide.....	241	276	+14.5
Bawdy house.....	533	589	+10.5
Causing disturbance by being drunk.....	3,765	3,787	+ 0.6
Common assault.....	8,170	9,651	+18.1
Communicating venereal disease.....	33	13	-60.6
Contempt of court.....	28	43	+53.6
Corrupting morals.....	263	381	+44.9
Cruelty to animals.....	79	80	+ 1.3
Damage not exceeding \$50 and other interference with property.....	3,331	4,277	+28.4
Disorderly conduct.....	15,550	16,277	+ 4.7
Duty of persons to provide necessities.....	1,476	2,156	+46.1
Duty to safeguard dangerous places.....	61	16	-73.8
Fraudulently obtaining food or lodging.....	1,052	916	-12.9
Fraudulently obtaining transportation.....	155	149	- 3.9
Gaming, betting, lotteries.....	2,364	2,984	+25.0
Injuring bird or animal other than cattle.....	50	66	+32.0
Intimidation.....	461	674	+46.2
Motor Vehicle			
Criminal negligence in operation of motor vehicle.....	719	789	+ 9.7
Dangerous driving.....	1,592	1,748	+10.0
Dangerous operation of vessel, etc.....	192	189	- 1.6
Driving while ability to drive is impaired.....	24,768	25,747	+ 4.0
Driving while disqualified.....	5,926	6,229	+ 5.1
Driving while intoxicated.....	1,534	1,408	- 8.2
Failing to stop at scene of accident.....	4,999	5,626	+12.5
Motor vehicle equipped with smoke screen.....	16	47	+193.8
Taking motor vehicle without consent.....	1,631	1,717	+12.1
Offensive weapons.....	957	1,288	+34.6
Personating peace officer.....	69	84	+21.7
Recognition, breach of.....	1,384	1,680	+21.4
Vagrancy.....	6,711	6,452	- 3.9
Other Criminal Code.....	3,873	4,317	+11.5
Federal Statutes	34,978	42,656	+22.0
Customs.....	234	293	+25.2
Excise.....	1,001	1,221	+22.0
Fisheries.....	844	712	-15.6
Food and Drugs.....	147	122	-17.0
Harbour Board and Merchant Seamen's.....	6,548	15,188	+131.9
Immigration.....	29	23	-20.7
Income Tax.....	5,084	5,992	+17.9
Indian—			
Intoxication.....	6,717	3,539	-47.3
Other.....	2,338	1,495	-36.1
Juvenile Delinquents—			
Adults who contribute to delinquency.....	1,880	1,602	-14.8
Incorrigibility.....	625	1,245	+99.2
Inducing child to leave home, etc.....	67	54	-19.4
Sexual immorality.....	326	191	-41.4
Lord's Day.....	132	83	-37.1
Narcotic Control.....	12	—	...
National Defence.....	74	101	+36.5
Railway.....	1,054	1,084	+ 2.8
Unemployment Insurance.....	4,986	6,071	+21.8
Weights and Measures.....	95	114	+20.0
Other federal statutes.....	2,785	3,526	+26.6
Provincial Statutes	946,962	1,028,608	+ 8.6
Children of Unmarried Parents.....	815	637	-21.8
Deserted Wives and Children's Maintenance.....	5,627	6,326	+12.4
Game and Fisheries.....	6,314	7,285	+15.4
Highway Traffic—			
Driving without due care and attention.....	42,054	48,547	+15.4
Other traffic.....	695,250	749,169	+ 7.8
Liquor Control—			
Intoxication.....	101,650	106,500	+ 4.8
Other.....	69,945	78,807	+12.7
Master and Servant.....	1,193	1,179	- 1.2
Medical, Dentistry and Pharmacy.....	263	139	-47.1
Mental Diseases.....	1,072	1,004	- 6.3
Prairie and Forest Fire Prevention.....	153	159	+ 3.9
Protection of Children.....	1,388	2,303	+65.9

13.—Convictions for Summary Conviction Offences, by Type, 1962 and 1963—concluded

Type of Offence	1962	1963	Increase or Decrease 1962-63
	No.	No.	p.c.
Provincial Statutes—concluded			
Public Health.....	84	93	+10.7
School Laws.....	452	633	+40.0
Other provincial statutes.....	20,702	25,827	+24.8
Municipal By-laws.....	268,371	300,055	+11.8
Intoxication.....	16,316	16,021	— 1.8
Traffic.....	197,346	232,010	+17.6
Other.....	54,709	52,024	— 4.9
Prohibited Parking.....	1,954,227	1,982,454	+ 1.4
Totals, Convictions.....	3,296,649	3,453,665	+ 4.8

Subsection 4.—Appeals

Appeal is an important safeguard in Canada's legal system and the conviction of a jury or judge may be appealed on the grounds that the verdict was unreasonable, that there was a wrong decision on some question of law or that there was a miscarriage of justice. In 1963 there were 2,721 appeals in indictable cases disposed of by the courts, of which 96 were Crown appeals and 2,625 appeals of the accused. Of the Crown appeals, 30 were from acquittal and 66 from sentence; of the appeals of the accused, 830 were from conviction and 1,795 from sentence. Appeals in summary conviction cases disposed of by the courts numbered 1,790 in 1963. Of these, 168 were appeals of the informant and 1,622 appeals of the accused. The informant appeals comprised 130 from acquittal and 38 from sentence and appeals of the accused comprised 1,426 from conviction and 196 from sentence.

Section 3.—Juvenile Delinquents

Juvenile Delinquent, as defined in the Juvenile Delinquents Act, means any child who violates any provision of the Criminal Code or of any federal or provincial statute, or of any by-law or ordinance of any municipality, or who is guilty of sexual immorality or any similar form of vice, or who is liable by reason of any other act to be committed to an industrial school or juvenile reformatory under the provision of any federal or provincial statute. The commission by a child of any of these acts constitutes an offence known as a delinquency.

The upper age limit of children brought before the juvenile courts in the provinces varies. The Act defines a child as meaning any boy or girl apparently or actually under the age of 16 years, or such other age as may be directed in any province. In Prince Edward Island, Nova Scotia, New Brunswick, Ontario and Saskatchewan under 16 is the official age in Alberta under 16 for boys and under 18 for girls; in Newfoundland under 17; in Quebec Manitoba and British Columbia under 18 years. In the interests of uniformity, it has been the practice of the Dominion Bureau of Statistics to publish information about juvenile delinquents 16 years of age or over in the annual report on *Statistics of Criminal and Other Offences* and to publish data relating to those under 16 years of age in a report entitled *Juvenile Delinquents*. In 1963, 3,558 juveniles 16 and 17 years of age were found delinquent in those provinces where the upper age limit is under 17 or under 18 years of age.

Included in the statistics of juvenile delinquents are cases (alleged as well as adjudged) which were brought before the courts and dealt with formally. A case was counted separately each time a child appeared before the court for a new delinquency or delinquencies. In instances where multiple delinquencies were dealt with at one court appearance, only one delinquency—the most serious—was selected for tabulation. Delinquencies reported as informal cases by the courts were not included nor were cases of children presenting conduct problems which were not brought to court or which were dealt with by the police, social agencies, schools, or youth-serving agencies. Thus, community facilities for dealing with children's problems may have an influence on the number of cases referred to court and, therefore, an effect on the statistics of juvenile delinquents.

14.—Juveniles brought before the Courts, by Province, and Total Dismissed and Delinquent, 1959-63

Province or Territory	1959	1960	1961	1962	1963	Percentage Change, 1962-63
	No.	No.	No.	No.	No.	
Newfoundland	274	421	413	494	523	+ 5.9
Prince Edward Island	42	35	52	60	66	+10.0
Nova Scotia	723	792	637	941	928	- 1.4
New Brunswick	371	481	511	450	472	+ 4.9
Quebec	2,504	2,795	3,101	3,078	2,909	- 5.5
Ontario	5,355	6,698	7,682	8,815	9,813	+11.3
Manitoba	754	1,212	993	1,014	909	-10.4
Saskatchewan	198	275	329	379	339	-10.5
Alberta	980	1,189	1,307	1,269	1,357	+ 6.9
British Columbia	2,093	2,111	1,949	2,157	2,570	+19.1
Yukon Territory	35	—	2	50	—	...
Northwest Territories	—	—	—	—	—	—
Canada	13,329	16,009	16,976	18,707	19,886	+ 6.3
Dismissed	370	517	570	843	776	- 7.9
Adjourned <i>sine die</i>	1,273	1,527	1,191	1,256	1,554	+23.7
Delinquent	11,686	13,965	15,215	16,608	17,550	+ 5.7

15.—Percentage Change in the Number of Boys and Girls brought before the Courts, 1954-63

Year	Percentage Change from Preceding Year			Percentage Change from 1953		
	Boys' Cases	Girls' Cases	All Cases	Boys' Cases	Girls' Cases	All Cases
1954	- 0.6	- 4.2	- 1.0	- 0.6	- 4.2	- 1.0
1955	+ 3.3	+25.9	+ 5.6	+ 2.7	+20.6	+ 4.6
1956	+26.9	+19.4	+26.0	+30.3	+44.0	+31.8
1957	+14.9	+21.0	+15.6	+49.8	+74.2	+52.4
1958	+10.4	+ 8.3	+10.1	+65.3	+88.7	+67.8
1959	+ 2.4	- 5.1	+ 1.5	+69.2	+79.0	+70.3
1960	+19.4	+26.0	+20.1	+102.0	+125.5	+104.5
1961	+ 6.3	+ 4.3	+ 6.0	+114.7	+135.2	+116.8
1962	+10.3	+ 9.1	+10.2	+136.9	+156.5	+138.9
1963	+ 6.2	+ 7.2	+ 6.3	+151.5	+175.1	+154.0

16.—Juvenile Delinquents, by Province, 1954-63

Year	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1954....	218	43	440	224	678	2,945	341	59	428	956	—	6,332
1955....	254	30	390	202	1,040	3,138	401	57	535	978	—	7,025
1956....	336	48	412	311	1,184	3,945	593	44	715	1,391	6	8,985
1957....	301	35	492	324	1,351	4,051	708	26	766	1,621	4	9,679
1958....	343	25	676	431	2,229	4,108	790	85	906	1,788	10	11,391
1959....	262	42	623	355	2,410	4,199	629	182	911	2,038	35	11,686
1960....	409	35	682	460	2,692	5,364	1,019	231	1,031	2,042	—	13,965
1961....	400	52	551	487	2,801	6,819	723	260	1,230	1,890	2	15,215
1962....	484	56	823	435	2,849	7,647	778	216	1,198	2,072	50	16,608
1963....	511	65	749	452	2,643	8,451	749	237	1,270	2,429	—	17,556

¹ Includes 956 cases in 1958 and 35 cases in 1959 "Adjourned *sine die*", compiled for statistical purposes as juvenile delinquents.

17.—Total Delinquent Children, by Number of Delinquent Appearances, 1963, with Number of Appearances in Previous Years

Number of Delinquent Appearances	Total Delin- quent Child- ren	Delinquent Appearances in Previous Years											
		0	1 or More	1	2	3	4	5	6	7	8	9	10+
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1 or more.....	15,591	12,770	2,821	1,460	606	300	153	90	63	47	24	26	52
1.....	14,087	11,806	2,281	1,213	492	224	127	67	44	39	17	19	39
2.....	1,178	773	405	193	87	49	19	19	12	7	5	5	9
3.....	244	137	107	45	20	19	7	3	6	1	1	2	3
4.....	55	35	20	9	4	5	—	—	—	—	1	—	1
5.....	15	11	4	—	1	2	—	—	1	—	—	—	—
6.....	9	6	3	—	2	—	—	1	—	—	—	—	—
7.....	3	2	1	—	—	1	—	—	—	—	—	—	—

18.—Juvenile Delinquents, by Group of Offence, and Ratio per 100,000 Population 7-15 Years of Age, 1954-63

Year	Delinquencies against the Person		Delinquencies against Property with Violence		Delinquencies against Property without Violence		Wilful and Forbidden Acts in respect of Certain Property		Forgery and Delinquencies relating to Currency		Other Delinquencies		Total Convictions	
	No.	Ratio to Population	No.	Ratio to Population	No.	Ratio to Population	No.	Ratio to Population	No.	Ratio to Population	No.	Ratio to Population	No.	Ratio to Population
1954....	184	7	1,444	59	2,489	102	673	28	22	1	1,510	62	6,332	259
1955....	181	7	1,548	61	2,767	108	629	25	29	1	1,371	73	7,025	275
1956....	250	9	1,888	69	3,572	131	839	31	39	1	2,397	85	8,985	329
1957....	254	9	2,005	70	3,764	131	994	35	28	1	2,634	92	9,679	338
1958....	346	12	2,268	76	4,436	148	985	33	36	1	3,320	111	11,391	381
1959....	265	9	2,408	78	4,748	153	952	31	27	—	3,286	106	11,686	377
1960....	369	11	2,953	92	5,694	177	1,272	40	36	1	3,641	113	13,965	434
1961....	382	11	3,511	103	6,435	189	1,248	37	33	1	3,606	106	15,215	447
1962....	460	13	3,563	102	7,129	201	1,420	41	49	1	3,987	114	16,608	475
1963....	490	14	3,864	108	7,386	206	1,630	45	48	1	4,138	115	17,556	489

19.—Juvenile Delinquents classified by Type of Delinquency, 1959-63

Delinquency	1959	1960	1961	1962	1963
	No.	No.	No.	No.	No.
Manslaughter and murder and causing death by criminal negligence.....	1	—	4	7	6
Murder, attempt.....	1	—	1	2	1
Rape and attempt, sexual intercourse and incest.....	4	5	5	12	6
Indecent assault (male and female).....	66	96	70	127	101
Assault, causing bodily harm and danger.....	25	42	36	43	62
Common assault.....	127	198	223	209	280
Interfering with transportation facilities.....	3	—	3	—	—
Other offences against the person.....	38	28	40	60	34
Breaking and entering a place.....	2,375	2,886	3,415	3,427	3,817
Robbery and extortion.....	32	66	96	136	47
Theft and having in possession.....	4,517	5,488	6,076	6,787	7,100
False pretences and fraud and corruption.....	24	35	35	34	50
Arson.....	55	91	74	94	80
Other interference with property.....	897	1,181	1,174	1,326	1,550
Forgery and delinquencies relating to currency.....	27	36	33	49	48
Incorrigibility and vagrancy.....	776	900	842	652	1,057
Immorality.....	267	258	238	223	176
Various other delinquencies.....	2,451	2,655	2,850	3,420	3,141
Totals.....	11,686	13,965	15,215	16,608	17,556

20.—Percentages of Delinquent Boys and Girls, by Age Group, 1962 and 1963

Age Group	1962			1963		
	Boys	Girls	Both Sexes	Boys	Girls	Both Sexes
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
7 - 12 years.....	24.1	13.6	22.9	24.3	12.3	22.9
13 - 15 ".....	75.5	86.3	76.7	74.8	86.8	76.2
Not given.....	0.4	0.1	0.4	0.9	0.9	0.9
Totals.....	100.0	100.0	100.0	100.0	100.0	100.0

21.—Age, Sex and School Grade of Delinquent Boys and Girls, 1963

(B=Boys; G=Girls)

Age	School Grades																Total Delinquents	
	Elementary										Secondary		Auxiliary		Not Given			
	1-4		5		6		7		8									
	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
7 years.....	45	2	—	—	—	—	—	—	—	—	—	—	—	—	7	—	52	9
8 ".....	151	9	—	—	—	—	—	—	—	—	—	—	1	—	8	—	160	2
9 ".....	348	8	19	1	—	—	—	—	—	—	—	—	10	—	15	—	392	9
10 ".....	426	18	160	9	37	1	1	—	1	—	—	—	13	1	42	2	680	31
11 ".....	298	16	303	21	251	9	35	3	4	1	1	—	50	1	45	1	987	52
12 ".....	205	6	336	22	455	46	333	38	64	7	6	1	34	6	80	12	1,513	138
13 ".....	95	13	244	21	505	54	745	116	530	86	96	22	64	5	103	16	2,382	333
14 ".....	82	12	192	14	402	59	940	108	1,033	172	830	134	110	15	259	59	3,848	573
15 ".....	63	10	154	15	335	37	767	82	1,195	168	2,288	358	147	21	495	106	5,444	797
Not given.....	—	—	1	—	3	1	—	—	5	1	8	3	8	1	110	12	136	18
Totals.....	1,713	94	1,409	103	1,988	207	2,823	347	2,832	435	3,229	518	437	50	1,164	208	15,594	1,962

22.—Disposition of Delinquents, by Type of Sentence, 1954-63

Year	Reprimanded		Probation of Court		Protection of Parents		Fined or Made Res-titution		Detained In-definitely		Sent to Training School		Final Dis-position Suspended		Corporal Punish-ment		Mental Hospital	
	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.
1954.....	199	3.1	2,595	41.0	174	2.8	1,095	17.3	27	0.4	1,121	17.7	1,119	17.7	2	--	..	..
1955.....	181	2.6	3,067	43.7	365	5.2	1,064	15.1	50	0.7	1,180	16.8	1,118	15.9	—	—	..	..
1956.....	359	4.0	3,155	35.1	404	4.5	2,015	22.4	30	0.3	1,440	16.0	1,577	17.6	—	—	5	0.1
1957.....	460	4.7	3,822	39.5	300	3.1	2,261	23.4	63	0.7	1,563	16.1	1,202	12.4	1	--	7	0.1
1958.....	504	4.4	5,728	50.3	294	2.6	1,624	14.3	13	0.1	1,822	16.0	1,389	12.2	3	--	14	0.1
1959.....	236	2.0	3,151	52.6	412	3.5	1,810	15.5	9	0.1	1,678	14.4	1,381	11.8	—	—	9	0.1
1960.....	442	3.2	7,413	53.1	518	3.7	2,289	16.4	42	0.3	1,791	12.8	1,456	10.4	—	—	14	0.1
1961.....	544	3.6	7,341	48.2	644	4.2	2,148	14.1	89	0.6	1,974	13.0	2,466	16.2	—	—	9	0.1
1962.....	697	4.2	8,827	53.1	369	2.2	2,219	13.4	89	0.5	1,862	11.2	2,532	15.3	—	—	12	0.1
1963.....	977	5.6	8,292	47.2	462	2.6	2,460	14.0	99	0.6	2,043	11.6	3,180	18.1	—	—	43	0.3

Section 4.—Correctional Institutions and Training Schools

Subsection 1.—Statistics of Correctional Institutions and Training Schools

Correctional institutions may be classified under four headings: (1) Penitentiaries—operated for adult offenders by the Federal Government in which, generally speaking, sentences of over two years are served; (2) Reformatories—operated for adult offenders by the provinces in which individual sentences of up to two years are served; (3) Common Gaols—operated for adult offenders by the provinces or counties in which sentences of up to two years can be served but in which, generally speaking, short-term sentences are served; and (4) Training Schools—operated by the provinces or private organizations under provincial charter for juvenile offenders serving indefinite terms up to the legal age for children in the particular province.

There is a limited amount of statistical information available with respect to these types of institution. "In custody" figures shown in Table 23 for penitentiaries refer only to those persons under sentence, but the figures for admissions include those received from courts as well as by transfer from other penitentiaries and by cancellation of tickets-of-leave and paroles. Figures for releases include expiry of sentences, transfers between penitentiaries, releases on ticket-of-leave and parole, deaths, pardons and releases on court order. In custody figures for provincial and county institutions may include, in addition to those serving sentences, persons awaiting trial, on remand for sentence or psychiatric examination, awaiting appeal or deportation, any others not serving sentence and, for training school population, juveniles on placement.

Population figures in Tables 23 and 24 are for a given day of the year, which is Mar. 31 except for Quebec gaols where populations are counted as of Dec. 31. These figures represent, in effect, a yearly census of correctional institutions and, as such, are not indicative of the daily average population count. For instance, if an abnormal number of commitments is made to a certain institution on or just prior to Mar. 31, the result will be an unrepresentative population total for the institution in that year.

With regard to the fluctuations that might have occurred during the year between census days, the total population of correctional institutions has shown a general increase

since Mar. 31, 1959; totals for training schools and provincial adult institutions have shown a tendency to level off or decline slightly but penitentiary population has increased steadily.

23.—Population in Penitentiaries, Years Ended Mar. 31, 1959-63

Item	1959	1960	1961	1962	1963
	No.	No.	No.	No.	No.
In custody at beginning of year.....	5,770	6,295	6,344	6,738	7,156
Received during year.....	3,918	4,523	4,973	5,541	6,539
Discharged during year.....	3,393	4,474	4,579	5,123	6,476
In custody at end of year.....	6,295	6,344	6,738	7,156	7,219

24.—Populations in Reformatories and Gaols and in Training Schools, as at Mar. 31, 1959-63

Type of Institution	1959	1960	1961	1962	1963
	No.	No.	No.	No.	No.
Reformatories and Gaols—					
Reformatories for men.....	3,806	3,769	4,012	3,670	3,919
Reformatories for women.....	172	144	180	171	171
Common gaols.....	7,188	6,983	7,629	8,225	8,665
Totals, Reformatories and Gaols.....	11,166	10,896	11,821	12,066	12,755
Training Schools—					
Training schools for boys.....	2,343	2,423	2,382	2,435	2,466
Training schools for girls.....	990	965	1,019	1,090	1,072
Totals, Training Schools.....	3,333	3,388	3,401	3,525	3,538

Subsection 2.—The Canadian Penitentiary Service*

The penitentiaries of Canada are administered by the Commissioner of Penitentiaries, responsible directly to the Minister of Justice. In the year ended Mar. 31, 1965, the federal penitentiary system consisted of six maximum security, four medium security and fifteen minimum security institutions, all for males; one prison for women; one maximum security prison camp for males of the Freedomite Doukhobor Sect; and two Correctional Staff Colleges.

The six maximum security institutions receive inmates sentenced by the courts to imprisonment for terms of from two years to life. These are located at New Westminster, B.C., Prince Albert, Sask., Stony Mountain, Man., Kingston, Ont., St. Vincent de Paul, Que., and Dorchester, N.B. Persons sentenced to penitentiary terms in Newfoundland are held in the provincially operated institution at St. John's, under financial arrangements authorized by Sect. 14 of the Penitentiary Act (SC 1960-61, c. 53).

The medium and minimum security institutions and the camps receive inmates transferred from the maximum security (receiving) institutions on the basis of their suitability for special forms of training, including vocational training. Of the medium security institutions, two—Collin's Bay Penitentiary and the Joyceville Institution—are within a few miles of Kingston. The other two—the Federal Training Centre and the Leclerc Institution—are close to St. Vincent de Paul.

Eight minimum security correctional camps are operated as extensions of a main institution in their respective areas. These are located at William Head and Agassiz, B.C.;

*Prepared under the direction of A. J. MacLeod, Commissioner of Penitentiaries, Ottawa.

Beaver Creek and Landry Crossing near Bracebridge and Petawawa, Ont.; Gatineau (Gatineau Park) and Valleyfield, Que.; Blue Mountain near Gagetown, N.B.; and Springhill, N.S. Six minimum security farm annexes operate as extensions of the penitentiaries at Dorchester, St. Vincent de Paul, Collin's Bay, Joyceville, Stony Mountain and Prince Albert, respectively. There is also a minimum security industrial satellite at St. Vincent de Paul.

The Prison for Women at Kingston, Ont., receives inmates transferred upon committal to penitentiary in any part of Canada. Prior to Dec. 1, 1960, it operated as a detached portion of Kingston Penitentiary.

The special security Prison Camp for Freedomites who have been sentenced to imprisonment in penitentiary is located near Agassiz, B.C., and is called Mountain Prison.

The two Correctional Staff Colleges—one at Kingston and one at St. Vincent de Paul—are for the advanced training of penitentiary officers. The Kingston College serves English-speaking or bilingual officers and the St. Vincent de Paul College is primarily for French-speaking officers from all parts of Canada. These Staff Colleges provide excellent facilities for Service-wide conferences of institutional heads and other special groups of officers.

The Headquarters of the Service is located in Ottawa. Regional directorates have been established at New Westminster, B.C., Kingston, Ont., and St. Vincent de Paul, Que., for the Western, Ontario and Quebec areas, respectively.

Subsection 3.—The National Parole System*

Parole is a means by which an inmate in any institution in Canada, if he gives definite indication of his intention to reform, can be released from prison. The purpose of parole is the protection of society, through the rehabilitation of the inmate. The Parole Board is as much concerned with the protection of society as with the reformation of the inmate, and the welfare of an individual inmate must not be allowed to impair the success of the parole system or the protection of the public.

The function of the Parole Board is to select those inmates in the various institutions in Canada who show some indication of a sincere intention to reform and to assist them in doing so by a grant of parole. The inmate then is allowed to serve the remainder of his sentence in society, but under supervision and subject to restrictions and conditions as to his conduct and behaviour, which are designed for his welfare and for the protection of society. The Board is not a reviewing authority and is not concerned with the propriety of the conviction or the length of the sentence, but only with the problem of deciding in each case whether or not there is a reasonable chance of reformation. Parole is not a matter of clemency and is not granted on compassionate or humanitarian grounds but only if it appears that there is at least a reasonable chance the inmate will lead a law-abiding life.

The National Parole Board is composed of a Chairman and four Members (one woman) and was formed in January 1959. It operates under the authority of the Parole Act (SC 1958, c. 38) which came into force on Feb. 15, 1959 replacing the former Ticket-of-Leave Act. It has jurisdiction over any adult inmate in any prison in Canada convicted of an offence against an Act of the Parliament of Canada. It also has jurisdiction to revoke or suspend any sentence of whipping or any order made under the Criminal Code prohibiting any person from operating a motor vehicle.

The decision of the Board is based on reports it receives from the police, from the trial judge or magistrate and from various people at the institution who deal with the inmate. Reports are also obtained from a psychologist or psychiatrist, when available. Where necessary, a community investigation is conducted to secure as much information as possible about the man's family and background, his work record and his position in the community. From all these reports, an assessment is made to determine whether or not he has changed his attitude and is likely to lead a law-abiding life. An inmate need not

* Prepared by T. G. Street, Chairman, National Parole Board, Ottawa.

obtain the services of a lawyer to apply for parole. He may apply by sending a letter to the Board and is assisted in preparing such an application at the institution, or another person may apply on his behalf. The Board automatically reviews all sentences of over two years. As soon as an application is received, a file is opened and investigation begun, the results of which are presented to the Board for decision.

All applications and reports are processed by the Parole Board staff at Ottawa. In addition to the headquarters staff, there are 24 regional officers stationed in ten regional offices across the country. They interview all applicants for parole to give them an opportunity of making verbal representations to a representative of the Board. The regional officers also submit to the Board reports of interviews and their assessment of the inmates' suitability for parole. These men have authority over the parolees in their respective areas and also give information and counsel to all inmates regarding possibility of parole and preparation for it. They may also issue a Warrant of Suspension and have a parolee arrested and placed in custody if it is necessary to prevent a breach of any term or condition of the parole. They are thus able to exercise effective and adequate control over all parolees in their respective areas.

A person on parole is under the care of a supervisor, usually an after-care agency worker or a probation officer, who reports to the regional officer. If he violates the conditions of his parole or commits a further offence or misbehaves in any manner, the Board may revoke his parole and return him to the institution to serve that part of his sentence outstanding at the time his parole was granted. If a parolee commits an indictable offence while on parole, his parole is automatically forfeited and he is returned to the institution to serve the unexpired balance of his sentence, plus any new term to which he was sentenced for the commission of the new offence.

It is essential that the general public should understand that the true purpose of punishment should be the reformation of the offender and not just vengeance or retribution. The treatment and training program in the institutions is a vital part of the correctional process and parole is an extension of this training outside the institution. It is not a matter of pampering prisoners but of trying to reform as many as possible and of giving prisoners a chance to rehabilitate if they seem to deserve it.

During the first six years of its operation the Board reviewed 50,845 cases, including applications for parole and automatic parole review, and granted 12,361 paroles. During the same period the Board revoked 1,254 paroles, which is a general average failure rate over the six-year period of 10 p.c. Of these 1,254 who failed on parole, 638 paroles were forfeited because of the commission of an indictable offence and 616 were revoked for misbehaviour or the commission of a minor offence.

Section 5.—Police Forces

Organization of Police Forces.—The police forces of Canada are organized in three groups: (1) the federal force, which is the Royal Canadian Mounted Police; (2) provincial police forces—the Provinces of Ontario and Quebec have their own provincial police forces but all other provinces engage the services of the Royal Canadian Mounted Police to perform parallel functions within their borders; and (3) municipal police forces—each urban centre of reasonable size maintains its own police force or engages the services of the provincial police, under contract, to attend to police matters. In addition, the Canadian National Railways, the Canadian Pacific Railway Company and the National Harbours Board have their own police forces.

The Royal Canadian Mounted Police.—The Royal Canadian Mounted Police is a civil force maintained by the Federal Government. It was established in 1873 as the North-West Mounted Police for service in what was then the North-West Territories and, in recognition of its services, was granted the use of the prefix "Royal" by King Edward VII in 1904. Its sphere of operations was expanded in 1918 to include all of Canada west of

Port Arthur and Fort William and in 1920 it absorbed the Dominion Police, its headquarters was transferred from Regina to Ottawa and its title was changed to Royal Canadian Mounted Police.

The Force is under the control of the Minister of Justice and is headed by a Commissioner who holds the rank and status of a Deputy Minister. Officers are commissioned by the Crown and are selected from the non-commissioned ranks. The Force has complete jurisdiction in the enforcement of the federal statutes. By arrangement between the federal and provincial governments, it enforces the provincial statutes and the Criminal Code in all provinces exclusive of Ontario and Quebec and under special agreement it polices some 121 municipalities. It is the sole police force in the Yukon and Northwest Territories, where it also performs various administrative duties on behalf of certain departments of the Federal Government. It maintains liaison officers in London and Washington and represents Canada in the International Criminal Police Organization, which has headquarters in Paris.

Of the Force's 17 divisions, 12 are actively engaged in the work of law enforcement, as are some 42 subdivisions and 648 detachments. The five remaining divisions are "Headquarters", "Depot" and "N", which are maintained as training centres, and "Marine" and "Air", which support the operations of the land divisions. A teletype system links the widespread divisional headquarters with the administrative centre at Ottawa and a network of fixed and mobile radio units operates within the provinces. Focal point of the Force's criminal identification work is the Headquarters Identification Branch; its services, together with those of the divisional and subdivisional units and the four Crime Detection Laboratories, are available to police forces throughout Canada. The Force operates the Canadian Police College at which Force members and selected representatives of other Canadian and foreign police forces may study the latest advances in the fields of crime prevention and detection.

The uniform strength of the Force at Mar. 31, 1965 was 7,102, including Marine Constables and Special Constables, at which time it maintained some 2,002 motor vehicles, 20 aircraft, 63 ships and boats, 249 sleigh dogs, 22 police service dogs and 231 horses.

Quebec Provincial Police Force.—The Quebec Provincial Police Force is responsible for the maintenance of peace, order and public safety in the province, and for the prevention and investigation of criminal offences and of violation of all laws of the province.

The province is divided into two almost equal parts known as the Montreal Division and the Quebec Division. The Montreal Division is divided into three subdivisions with headquarters at Granby, Hull and Montreal. The Quebec Division is also divided into three subdivisions with headquarters at Chicoutimi, Quebec and Rimouski. There are 112 detachments throughout the province—62 in the Montreal Division and 50 in the Quebec Division. The Force at the end of 1964 had 1,950 regular members—46 officers, 389 non-commissioned officers, and 1,515 constables.

The Quebec Provincial Police Force is under the command of a Director General who is assisted by an officer holding the rank of Deputy Director General. Each Division is headed by an Assistant Director. A commissioned officer is in command of each subdivision.

Ontario Provincial Police Force.—The Ontario Provincial Police, which has an authorized strength of over 3,600, enforces federal and provincial law in those areas that do not maintain a police department and on all King's Highways. The Force is administered, from General Headquarters at Toronto, by a Commissioner who has the rank and status of a Deputy Minister under the Attorney General. Other senior executive officers include two Deputy Commissioners, five Assistant Commissioners, and an Administrative Aide to the Commissioner. The Force has two principal divisions—Operations and Services—

which are administered under the supervision of the Deputy Commissioner, Operations and Deputy Commissioner, Services, respectively. In turn, the five Divisions at the next level are administered by their respective Assistant Commissioners: Assistant Commissioner, Field; Assistant Commissioner, Traffic; Assistant Commissioner, Administration; Assistant Commissioner, Staff Services; and Assistant Commissioner, Special Services. Specialized branches under Special Services include Criminal Investigation, Liquor Law Enforcement, Precious Metals Theft, Anti-gambling, Anti-rackets, Auto Theft, and Intelligence Branches. Under Staff Services, the Central Records Branch offers a 24-hour, seven-day-week service to all police departments in Ontario on such matters as fingerprints records, criminal records, dry cleaning and laundry mark identification, photographic service, stolen and recovered property lists.

In addition to policing those parts of Ontario that are without municipal police forces, the Ontario Provincial Police Force is responsible for providing special services to the municipal forces in specialized areas, including the investigation of serious crime, and is required to maintain sufficient manpower to ensure proper policing within the municipalities in emergency situations.

In the field there are 218 detachments controlled through 17 District Headquarters located at Chatham, London, Burlington, Niagara Falls, Toronto, Mount Forest, Barrie, Peterborough, Belleville, Perth, Long Sault, North Bay, Sudbury, Sault Ste. Marie, Timmins, Port Arthur and Kenora. In addition, there are 40 municipalities policed under special contract.

The Force operates one of the largest frequency-modulation radio networks in the world, with 76 fixed radio stations and more than 920 radio-equipped mobile units, including motorcycles, marine units and aircraft. The Force also operates an interprovincial telecommunications network connecting all 17 Districts as well as other police departments on a local, national and international basis. Because of territorial peculiarities, the northern districts augment their normal transportation facilities by the use of snowmobiles, swamp buggies, dog teams and a variety of rail transport facilities.

In addition to regular constable recruitment, the Force has a cadet program, making it possible for qualified young men to create for themselves a career in a long-established police force. A recent important development in the progress of this Crown Force occurred when legislative enactment provided that all ranking officers from inspector up to and including the Commissioner, receive the Queen's Commission in the same manner as the Armed Forces.

Municipal Police Forces.—Provincial legislation makes it mandatory for cities and towns to furnish adequate municipal policing for the maintenance of law and order in their communities. Also, all villages and townships or parts of townships that have a population density and a real property assessment sufficient to warrant maintenance of a police force, and have been so designated by Order in Council, are made responsible for the adequate policing of their municipalities.

Uniform Crime Reporting.—A new method of reporting police statistics (police administration, crime and traffic enforcement statistics), known as the Uniform Crime Reporting Program, was commenced on Jan. 1, 1962. The program was developed by the Dominion Bureau of Statistics in co-operation with the Canadian Association of Chiefs of Police Committee on Uniform Crime Reporting. Historically, the police have compiled selected statistics to meet their own needs and have been prepared to give an account of crimes in their jurisdictions. However, the definitions and methods for collecting these statistics were not uniform and the data could not be expressed with consistency on a national, provincial or local basis. With the development of the Uniform Crime Reporting Program, meaningful statistical aggregates became possible. The police were supplied

with a manual of instructions containing standard definitions for the reporting of police administration, crime and traffic enforcement statistics on specially designed statistical forms to be submitted to the DBS.

Police Personnel.—As shown in Table 25, full-time police personnel (police, civilian employees, etc.) in Canada numbered 33,953 at Dec. 31, 1963. Police strength was 29,023, civilian employees numbered 4,431, trainees 233 (all municipal police), and other employees 266. Thus, there was a ratio of 1.8 police personnel for every 1,000 persons in Canada; the ratio of policemen alone was 1.5. Police personnel ratios in the provinces ranged from 1.0 to 5.2 per 1,000 persons and policemen ratios from 0.9 to 5.0.

In 12 selected metropolitan areas there were 12,727 police personnel, including 12,536 municipal police personnel, 184 Royal Canadian Mounted Police under contract and seven provincial police under contract. Total municipal police personnel numbered 19,984, made up of 19,031 in municipal forces, 867 Royal Canadian Mounted Police under contract and 86 provincial police under contract.

There were no policemen killed by criminal action in 1963 but 14 lost their lives accidentally while on duty. Police transport facilities at the end of the year included 5,421 automobiles, 808 motorcycles, 380 boats, 310 horses and 18 aircraft.

25.—Police Personnel, by Type of Force, 1963

Force and Item	Policemen			Civilian and Other Employees ¹			Total
	Male	Female	Total	Male	Female	Total	
	No.	No.	No.	No.	No.	No.	
Royal Canadian Mounted Police—							
Actual strength.....	6,823	—	6,823	630	1,087	1,717	8,540
Authorized strength.....	²	²	6,570	²	²	1,946	8,516
Engagements.....	344	—	344	57	113	170	514
Retirements.....	111	—	111	10	10	20	131
Other separations.....	212	—	212	52	124	176	388
Ontario Provincial Police—							
Actual strength.....	2,413	—	2,413	258	220	478	2,891
Authorized strength.....	²	²	2,413	²	²	478	2,891
Engagements.....	465	—	465	47	19	66	531
Retirements.....	17	—	17	1	1	2	19
Other separations.....	73	—	73	19	7	26	99
Quebec Provincial Police—							
Actual strength.....	1,739	10	1,749	329	203	532	2,281
Authorized strength.....	1,830	10	1,840	349	237	586	2,426
Engagements.....	397	3	400	75	65	140	540
Retirements.....	25	—	25	3	—	3	28
Other separations.....	186	—	186	54	37	91	277
Municipal Police (excl. RCMP and OPP contracts)—							
Actual strength.....	16,706	168	16,874	1,453	704	2,157	19,031
Authorized strength.....	16,924	173	17,097	1,551	708	2,259	19,356
Engagements.....	1,476	22	1,498	414	201	615	2,113
Retirements.....	166	—	166	15	4	19	185
Other separations.....	680	21	701	295	144	439	1,140
Canadian National Railways Police—							
Actual strength.....	543	4	547	10	13	23	570
Authorized strength.....	551	4	555	10	13	23	578
Engagements.....	86	1	87	—	3	3	90
Retirements.....	13	—	13	—	—	—	13
Other separations.....	53	—	53	—	3	3	56
Canadian Pacific Railway Company Police—							
Actual strength.....	515	—	515	13	10	23	538
Authorized strength.....	526	—	526	13	13	26	552
Engagements.....	86	—	86	—	5	5	91
Retirements.....	11	—	11	—	—	—	11
Other separations.....	72	—	72	—	8	8	80

For footnotes, see end of table.

25.—Police Personnel, by Type of Force, 1963—concluded

Force and Item	Policemen			Civilian and Other Employees ¹			Total
	Male	Female	Total	Male	Female	Total	
	No.	No.	No.	No.	No.	No.	
National Harbours Board Police—							
Actual strength.....	102	—	102	—	—	—	102
Authorized strength.....	104	—	104	—	—	—	104
Engagements.....	7	—	7	—	—	—	7
Retirements.....	3	—	3	—	—	—	3
Other separations.....	8	—	8	—	—	—	8
Totals, All Forces—							
Actual strength.....	28,841	182	29,023	2,693	2,237	4,930	33,953
Authorized strength.....	2	2	29,105	2	2	5,318	34,423
Engagements.....	2,861	26	2,887	593	406	999	3,886
Retirements.....	346	—	346	29	15	44	390
Other separations.....	1,284	21	1,305	420	323	743	2,048

¹ Includes trainees; those on actual strength numbered 224 males and 9 females.² Not reported by sex.

Crime Statistics.—Table 26 shows the number of crimes dealt with by the police in 1963, including offences under the Criminal Code, federal statutes, provincial statutes and municipal by-laws; clearances by charge and otherwise; and the number of adults and juveniles charged. Offences known to the police but discarded as being unfounded are not shown in the table but numbered 31,338 under Criminal Code classifications (except traffic) and 8,447 under other statutes (except traffic). Traffic enforcement statistics are given separately at the end of the table.

During 1963, the police reported 41,347 offences committed against the person, including 217 murders, 6,961 cases of rape or other sexual offence, and 34,027 offences of wounding and other assault (not indecent); all offences against the person resulted in the charging of 19,372 persons, 1,117 of them juveniles. During the year there were 363,002 cases of robbery, theft and other offences against property, with or without violence, resulting in 74,152 persons charged, 22,365 of them juvenile males and 1,268 juvenile females. Other Criminal Code offences included 30,400 cases of fraud, false pretences, forgery, etc., 1,626 offences of prostitution, 2,881 gaming and betting offences and 2,900 offensive weapon offences. Of the 26,677 federal statute offences reported, 687 were under the Narcotic Control Act and 215 under the controlled drugs part of the Food and Drugs Act. These two classifications resulted in the charging of 549 persons, all of them adults.

During 1963, 67,133 Criminal Code offences under traffic enforcement laws were reported and 1,533,773 traffic offences under federal, provincial and municipal statutes. The former resulted in the charging of 47,706 males and 878 females. The number of motor vehicles stolen was 37,700, or 620.6 per 100,000 vehicles registered; 34,927 or 92.6 p.c. of these vehicles were recovered. The number of traffic accidents reported in 1963 was 539,110, of which 3,619 involved fatalities, 84,055 resulted in injuries, 276,048 involved property damage of over \$100 and 175,388 damage of \$100 or less. There were 4,261 persons killed in traffic accidents, including 2,938 drivers and passengers, 1,152 pedestrians, 134 cyclists and 37 others, and there were 121,989 persons injured.

During the year, the police were asked to locate 16,231 missing adults and 24,197 missing juveniles; 15,529 adults and 23,981 juveniles were found. The number of drownings reported by the police was 1,349.

26.—Crime Statistics Reported by Police, by Class of Offence, 1963

Class of Offence	Actual Offences ¹	Offences Cleared		Persons Charged			
		By Charges	Other-wise	Adults		Juveniles	
				Male	Female	Male	Female
	No.	No.	No.	No.	No.	No.	No.
Criminal Code	571,001	151,505	49,466	115,536	10,343	28,284	2,241
Capital murder.....	158	112	29	102	7	8	—
Non-capital murder.....	59	42	5	62	7	2	—
Attempted murder.....	108	79	12	80	4	2	—
Manslaughter.....	34	35	1	35	1	6	—
Rape.....	549	229	95	292	—	41	—
Other sexual offences.....	6,412	2,683	727	2,319	28	284	50
Wounding.....	1,267	486	145	402	53	65	7
Assaults (not indecent).....	32,760	14,776	9,629	14,100	763	606	46
Robbery.....	5,885	1,493	216	1,693	95	333	12
Breaking and entering.....	94,249	18,846	3,312	13,051	238	7,863	189
Theft, motor vehicle.....	37,255	8,233	1,705	5,805	93	3,683	53
Theft over \$50.....	62,784	8,439	2,691	6,933	605	1,750	99
Theft \$50 or under.....	157,266	26,263	10,841	15,202	2,848	8,058	877
Have stolen goods.....	5,563	5,111	206	3,709	247	678	38
Fraud, false pretences, etc.....	30,400	17,792	2,686	9,039	907	195	54
Prostitution.....	1,626	1,419	41	400	924	8	11
Gaming and betting.....	2,881	2,285	124	2,796	159	2	—
Offensive weapons.....	2,900	2,149	310	1,792	53	201	1
Other Criminal Code (except traffic).....	128,845	41,033	16,691	37,724	3,311	4,499	804
Federal Statutes (except traffic)....	26,677	20,355	2,682	17,878	1,287	670	239
Provincial Statutes (except traffic)...	219,288	203,196	4,336	181,259	15,574	3,163	811
Municipal By-laws (except traffic)...	56,502	42,384	7,602	38,411	3,594	1,453	118
TRAFFIC ENFORCEMENT STATISTICS							
Criminal Code	67,133	50,248	1,576	47,706	878	..	..
Criminal Negligence—							
Causing death.....	176	169	1	161 ²	7 ²	..	..
Causing bodily harm.....	67	50	2	51 ²	1 ²	..	..
Operating motor vehicle.....	402	314	7	295 ²	5 ²	..	..
Failing to stop at scene of accident..	23,602	7,911	1,252	6,597 ²	211 ²	..	..
Dangerous driving.....	3,254	2,758	97	2,653 ²	29 ²	..	..
Driving while intoxicated.....	3,754	3,696	16	3,587 ²	73 ²	..	..
Driving while impaired.....	28,766	28,338	162	27,734 ²	496 ²	..	..
Driving while disqualified.....	7,112	7,012	39	6,628 ²	56 ²	..	..
Federal Statutes (except parking)...	9,673	5,606	112	5,561³	..	..	..
Provincial Statutes (except parking)...	1,189,846	1,088,630	33,869	1,076,427³	..	..	..
Municipal By-laws (except parking)...	334,254	326,927	2,326	322,061³	..	..	..

¹ Offences reported or known to police minus those discarded as unfounded; the latter numbered 31,338 under the Criminal Code.

² Adults and juveniles.

³ All persons charged.

CHAPTER X.—LAND USE AND RENEWABLE RESOURCE DEVELOPMENT*

CONSPECTUS

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*The interpretation of the symbols used in the tables throughout the Year Book
will be found on p. viii of this volume.*

Until recently, governmental policies relating to Canada's renewable natural resources were directed toward the promotion of settlement on agricultural land and the large-scale utilization of other renewable resources. As a consequence, individual choice and initiative by private citizens was the basis of most action relative to resource utilization, and government programs of resource management and regulation, with some important exceptions, were concerned mainly with the rights and duties of individuals. However, widespread technological changes, particularly in the agricultural and transportation industries, have taken place during the past few decades and there has been a strong trend toward the concentration of an increasing population in urban centres. These changes have been accompanied by a related change in the pattern of land use and such developments, together with evidence of a degree of wind and water erosion and other manifestations of neglect of suitable conservation practices, have indicated the need for considerable planned adjustment in rural areas. Also, the increasing complexity of social organization and the attendant trend toward public decisions respecting resource management and use, have implied the need for improved federal and provincial legislative-administrative organization relative to natural resources.

One of the most important responses to these needs was the "Resources for Tomorrow" Conference held in 1961 to permit examination of problems of resource use and of creating an organizational framework suited to the modern requirement for integrated, comprehensive resource-use planning for social and economic development. Subsequent to this conference, the Canadian Council of Resource Ministers, composed of one representative from each province and one from the Federal Government, was established to perform a similar function on a continuing basis. Previous federal investigations of significance concerned with the general problem of government organization for effective resource use were: the Senate of Canada Special Committee on Land Use, established in 1957 and continuing until 1963; the House of Commons Standing Committee on Mines, Forests and Waters; and the National Conference on Reconstruction, held in 1945. Notable among provincial government efforts along similar lines is the annual British Columbia resources conference.

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Constitutionally, administration and disposition of natural resources rests mainly with the provincial governments. Under the British North America Act, fisheries were under federal jurisdiction and the federal and provincial governments shared legislative authority with respect to agriculture, international and interprovincial waters, etc., with federal legislation taking precedence over provincial legislation should conflict arise; however, subsequent interpretations of the Act have established most aspects of control of resources as being matters of provincial jurisdiction. As well, in the years following Confederation certain provinces, by agreement, assumed varying degrees of responsibility for administering the fisheries legislation and other federal resources legislation. Within this general framework, the Federal Government has taken certain steps to establish a national resource policy, to co-ordinate the activity of the various federal departments concerned with resources and relevant social and economic problems, to undertake or share in research, and to provide initiative and financial assistance in the establishment of co-operative federal-provincial programs of resource adjustment and development; and provincial governments have moved significantly to accommodate their administrative structures to the need for integrated, planned resource adjustment and development. Aspects of this trend to accommodate legislative-administrative organization to emerging needs will be apparent in the following descriptions of federal and federal-provincial agencies and programs. In addition, a great number of wholly provincial programs have been instituted, which further illustrate the trend toward integration of activities in resource administration.

Federal participation in land and water conservation programs began before the turn of the present century; starting in 1877, this included the work of the now disbanded Department of the Interior in the field of surveying and development of water resources in Western Canada. Later, such programs included those conducted under the Prairie Farm Rehabilitation Act which was enacted in 1935 to aid in the rehabilitation of the drought-stricken areas of the prairies, the work on the eastern seaboard conducted under the Maritime Marshland Rehabilitation Act of 1948, water development projects undertaken under the terms of the Canada Water Conservation Assistance Act of 1953 and, most recently, the broad and comprehensive resource development program for all of Canada envisaged under the Agricultural Rehabilitation and Development Act of 1961. Over this period, many projects have been undertaken, both under these legislative measures and under the terms of reference of the federal and provincial government departments and agencies concerned with resource development. They vary in nature and scope but each has as its basic objective the more effective utilization of Canada's land and water resources and the provision of a greater degree of economic stability for the rural areas of the country.

Section 1 gives the currently available data on the land resources of Canada; Section 2 describes the above-mentioned resource development legislation and the results of the implementation of that legislation; Section 3 outlines the organization of the federal and provincial committees established to co-ordinate the work of departments concerned with natural resources; and Section 4 gives brief indication of the federal-provincial programs undertaken by other federal departments and agencies with the same concern.

Section 1.—Land Resources

Information currently available regarding Canada's vast land resources is shown in Table 1, where the land area is classified as occupied agricultural, forest and 'other' land, the latter including urban land, road allowances, grass and brush land and all waste land such as open muskeg, swamp and rock. The Department of Forestry estimates that about 48 p.c. of the land area of Canada is forested and, according to the Census of 1961, less than 8 p.c. is classed as occupied farm land. A great part of the 1,606,788 sq. miles of 'other' land is located in the Yukon and Northwest Territories which together have a land area of 1,458,784 sq. miles. The occupied farm land in these Territories is practically nil and the forest area is estimated at 275,800 sq. miles.

1.—Land Area classified as Occupied Agricultural or Forest, by Province

NOTE.—Figures for occupied agricultural land were obtained from the 1961 Census; areas of forest land were compiled by the Department of Forestry from estimates supplied by the Forestry Service in each province.

Description	New-found-land	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Yukon and N.W.T.	Canada
	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles
Occupied Agricultural Land—												
Improved—Crops and summer fallow	21	615	518	763	8,218	12,868	17,061	64,223	36,038	1,360	1	141,686
Pasture.....	6	263	199	312	3,614	5,149	1,125	2,179	2,610	554	1	16,012
Other.....	5	28	60	72	456	785	508	970	865	121		3,870
Unimproved—Forest (woodland) ²	31	463	2,130	1,923	7,033	5,090	2,329	3,430	3,341	1,177	2	26,949
Other.....	22	131	578	367	2,864	5,137	7,368	29,848	30,941	2,829	9	81,094
Totals, Occupied Agricultural Land	85	1,500	3,485	3,437	22,185	29,029	28,391	109,650	73,795	7,011	13	269,611
Forest Land—												
Softwood—												
Merchantable.....	24,422	78	7,270	6,207	75,687	44,110	14,669	14,621	14,483	80,330	35,200	317,167
Young growth.....	5,835	396	789	2,889	40,922	35,925	20,366	3,413	14,042	87,786	10,000	222,363
Mixedwood—												
Merchantable.....	403	132	5,250	7,298	24,533	34,289	6,514	5,046	11,208	—	19,800	135,748
Young growth.....	269	145	458	2,042	26,281	34,289	6,514	5,046	11,208	—	3,500	89,852
Hardwood—												
Merchantable.....	9	13	841	1,939	14,391	6,569	3,403	9,528	5,255	3,945	4,700	50,583
Young growth.....	244	11	45	1,932	14,344	17,961	4,767	3,122	13,723	7,953	2,500	64,278
Unclassified ³	2,680	37	427	2,470	1,500	1,191	3,011	3,172	45,120	28,397	—	87,955
Totals, Productive Forest Land.....	33,862	813	15,080	23,887	220,625	164,568	58,189	50,239	116,572	208,411	75,700	967,946
Non-productive Forest Land ⁴	53,930	121	1,194	442	157,500	97,174	64,632	67,499	41,023	59,227	200,100	742,842
Totals, Forest Land.....	87,792	934	16,274	24,329	378,125	261,742	122,821	117,738	157,595	267,638	275,800	1,710,788
Net Productive Land¹.....	33,916	1,850	16,435	25,401	235,777	188,507	84,251	147,459	187,026	214,275	75,711	1,210,608
Other Land².....	55,199	213	2,773	1,992	130,583	58,411	62,892	5,224	20,751	85,777	1,182,973	1,606,788
Totals, Land Area³.....	143,045	2,184	20,402	27,835	523,860	344,092	211,775	220,182	248,800	359,279	1,458,784	3,560,238

¹ Less than half a square mile.

² Areas incapable of producing crops of merchantable timber because of adverse climatic, soil or moisture conditions, and reserve forest lands for which no inventories are available.

³ Includes only occupied agricultural land (less forest woodland) plus productive forest land.

⁴ Includes all other land such as urban land, road allowances, grass and brush land and all waste land such as open muskeg, swamp and rock and also unclassified land.

⁵ Includes areas of recent burn, cut-over land plus Non-productive Forest Land plus Other Land.

On the basis of information now available, it is estimated that, in addition to the present arable land across the country, about 40,000,000 acres of virgin land can be used for arable crops if the need arises. However, most of these reserves will require clearing or reclamation measures before they can be used for agriculture. In addition to the present arable land and potential reserves, 55,000,000 to 60,000,000 acres are suitable for wild pasture.

As the Canada Land Inventory (p. 450) progresses, a great deal of detailed information will become available on the land resources of the country, their present utilization and their capability.

Section 2.—Federal and Federal-Provincial Resource Development Legislation and Projects

Prairie Farm Rehabilitation Act

The Prairie Farm Rehabilitation Act was passed in 1935 by the Parliament of Canada, to provide for the rehabilitation of areas subject to drought and wind erosion in Manitoba, Saskatchewan and Alberta. A 1937 amendment broadened its scope to include land utilization and resettlement, and a 1939 amendment removed the time-limit so that the Act might remain in force indefinitely.

As originally conceived, the Act provided for assistance in the conservation and reclamation of land and water resources in the southern plains area of the Prairie Provinces. In the main this has consisted of the establishment of community pastures on land sub-marginal for cereal crop production, and the conservation of runoff water by constructing dugouts and damming streams. More recently, the program has been extended to embrace the entire settled agricultural area of the Prairie Provinces and the Prairie Farm Rehabilitation Administration has been made responsible for the development of large-scale irrigation and reclamation projects being undertaken by the Government of Canada. The Administration has also been active in the initiating of the Agricultural Rehabilitation and Development Act program (p. 448) in the four western provinces and has taken over from the Research Branch of the federal Department of Agriculture the operation of the tree nurseries at Indian Head and Sutherland, Sask.

The PFRA is administered from its headquarters at Regina by a Director who is responsible to the Deputy Minister of Agriculture in Ottawa. The following is a résumé of current activities.

Water Development.—A major phase of PFRA activities is provision to farmers of engineering and financial assistance in the construction of individual farm, community and large-scale water storage and irrigation projects. Since 1935 assistance has been provided in the construction of more than 90,000 small dams and dugouts to supply water for livestock, irrigation and domestic use. The PFRA provides all engineering surveys required to plan and design such projects and pays a portion of the construction costs, usually about 50 p.c. but larger proportionately when two or more farmers act together to develop water resources. Applications for large water projects are considered individually by PFRA and if approved are constructed under an agreement between the Federal Government and the provincial or local government concerned; PFRA builds the projects and other government bodies operate them. Six irrigation projects in southern Saskatchewan are owned and operated by PFRA, as are the Bow River Irrigation Project northwest of Medicine Hat in Alberta, and the Predevelopment Irrigation Farm associated with the South Saskatchewan River Development Project near Outlook in Saskatchewan. The projects in southwestern Saskatchewan and in Alberta, originally developed as part of the Federal Government's resettlement and rehabilitation program, now serve 160,000 acres of land and provide direct benefits to about 1,000 farmers.

Four to eight million trees are distributed annually to prairie province farmers for farmstead and field shelterbelts; annual production of trees will be increased to 15,000,000.

Major Projects.—Where a special need exists, the costs of such projects are usually shared by the federal and provincial governments and PFRA provides engineering services and supervises construction. Examples of major projects undertaken are as follows.

St. Mary Irrigation Project.—The St. Mary Irrigation Project, jointly undertaken by the Federal Government and the Government of Alberta in 1946, is intended to provide water to irrigate 500,000 acres of land between Lethbridge and Medicine Hat. Three important international streams are involved—the St. Mary, the Belly and the Waterton Rivers. The Federal Government is responsible for construction of the main water storage and supply facilities, and the Alberta Government for the irrigation distribution system and agricultural development. A key structure, the St. Mary Dam, was completed in 1951; the diversion of the Belly River into the St. Mary Reservoir was completed in 1958; and the diversion of the Waterton River to the same reservoir via the Belly River Diversion is planned for completion in 1965. Present facilities extend irrigation to 296,000 acres of land, and the Waterton River water will irrigate the other 214,000 acres.

South Saskatchewan River Development Project.—In 1958 the Federal Government and the Government of Saskatchewan reached an agreement to begin construction on a large multi-purpose project which would enable better use to be made of the water resources of the South Saskatchewan River through irrigation, power development, urban water supply, recreational development and improved river control. The project includes the building of two dams—the major one between the towns of Outlook and Elbow and the other adjacent to the divide between the South Saskatchewan and Qu'Appelle Valleys. The cost of all construction associated with the creation of the reservoir will be shared by the federal and provincial governments at a ratio of three to one, the provincial share not to exceed \$25,000,000. The Federal Government provides all engineering, supervisory and administration requirements.

When completed, the project will provide water for the irrigation of about 500,000 acres between Elbow and the city of Saskatoon, and in the Qu'Appelle Valley. Power potential at the dams site is 475,000 kwh. The reservoir—140 miles long with a capacity of 8,000,000 acre-feet of water (usable storage of 2,750,000 acre-feet)—will cost an estimated \$100,000,000 to construct. The main dam—210 feet high and with an over-all length of 16,700 feet—will be the largest rolled-earth dam in Canada and one of the largest in the world. By the spring of 1965 expenditures on this project had amounted to \$77,000,000.

Northwest Escarpment and Interlake Reclamation Project.—By agreement between the Federal Government and the Manitoba Government, certain flood control and land reclamation projects may be jointly undertaken. Investigation and reclamation work has been done to overcome flooding and erosion problems in the Riding, Duck and Porcupine Mountain areas and the Whitemud watershed, consisting of stream channel improvement, dyking, stream bank erosion control and building cutoffs and diversions. However, since 1958, work has been mainly confined to studies in the Wilson Creek headwaters area, and to completion of the reclamation projects on the Fairford and Icelandic Rivers of the Interlake region.

Assiniboine River Reclamation Project.—Flooding problems along the Assiniboine River between Portage la Prairie and Headingley in Manitoba have, over the years, caused damage to farm land, buildings and other property. Flood protection work, which has been carried on for many years, has consisted mainly of dyke construction and channel improvement: however in 1962 an agreement was signed between the Governments of Canada and Manitoba for major flood control measures, including a large-scale flood control and water conservation reservoir on the Assiniboine River near Shellmouth, and the construction of a diversion canal near Portage la Prairie to carry Assiniboine River floodwaters to Lake Manitoba; construction of the main dam was well under way in 1965.

Community Pasture Program.—The conversion of submarginal land from cereal crop production to pasture has been considered one of the necessary adjustments in land use in the drier areas of the Prairie Provinces. The 1937 amendment of the Act enabled PFRA to withdraw such land from cultivation and assist farmers to move to better areas.

Since then, 75 pastures have been developed, comprising some 2,250,000 acres of land providing controlled summer grazing for 150,000 head of cattle owned by more than 7,500 patrons. Current pasture development under PFRA, and under the cost-sharing Agricultural Rehabilitation and Development Act program, is based on the need to diversify production as a means of improving the position of low income farmers.

Maritime Marshland Rehabilitation Act

The MMRA program was instituted in 1948 by federal legislation to assist Nova Scotia, New Brunswick and Prince Edward Island in preserving and developing tidal marshlands, mainly in the Bay of Fundy area. The Federal Government constructs the protective works and the provinces make arrangements with land owners, provide drainage ditches and encourage proper use of the land. In all, 123 areas totalling more than 81,000 acres have been protected by 250 miles of dyke and 437 aboteaux, or tidal dams.

One of the modern engineering techniques employed by the MMRA involves construction of large dam structures near the mouths of tidal rivers. These permanently reclaim the lands along such rivers, provide highway crossings and eliminate the continual change in stream-bed location which is characteristic of tidal rivers. The three major structures are: Shepody Dam, completed in 1955 at a total cost of \$1,573,000, provides protection of a permanent nature to some 5,500 acres of fertile marshland from saltwater flooding and has reduced maintenance costs to only a fraction of what they were; Annapolis River Dam, completed in 1960 at a total cost of \$2,500,000 (\$915,000 paid by the Province of Nova Scotia) is a multi-purpose project providing a much needed highway crossing and protection of about 4,300 acres of rich farm land from saltwater flooding; and Tantramar River Dam, completed in 1960 at a total cost of \$905,000 (\$201,000 paid by the Province of New Brunswick) protects about 18,000 acres of marshland from flooding and provides a crossing over the Tantramar River for the Trans-Canada Highway. Pre-construction work began on a combined causeway and dam across the Petitediac River at Moncton, N.B., the total cost of which is estimated at \$3,000,000; of this amount, the Federal Government share is \$800,000.

The conservation problems which were the original basis for the MMRA have been largely overcome and, since the inception of the Agricultural Rehabilitation and Development Act program in 1961, the MMRA Administration has functioned in part as a regional ARDA office, and at the request of the provinces has provided engineering assistance on soil and water conservation problems in many areas of the Maritime Provinces.

Canada Water Conservation Assistance Act

This Act was passed in 1953 to enable federal participation up to 37.5 p.c. of the cost of construction of dams and other major water conservation and control projects. To date (mid-1965) only Ontario has participated, its three projects being the Ausable River Conservation Program, the Upper Thames River Conservation Program and the Metropolitan Toronto and Region Conservation Program. The over-all cost is estimated at \$34,500,000, of which the Federal Government has agreed to provide a maximum of about \$13,000,000. To Mar. 31, 1965, the Federal Government had contributed \$4,342,000.

Agricultural Rehabilitation and Development Act

The Agricultural Rehabilitation and Development Act was proclaimed in June 1961 and is an important element in Canadian agricultural policy and renewable resources management policy at both national and provincial levels. The Act authorizes the Federal Government to enter into agreements with provincial governments for the joint undertaking of: (1) projects for the alternate use of lands classed as marginal or of low productivity; (2) projects for the development of income and employment opportunities in rural agricultural areas; (3) projects for the development and conservation of soil and

water resources; and (4) projects for research relative to the foregoing. Discussions with the provincial governments, beginning in 1961, resulted in the signing, by October 1962, of a general ARDA agreement between the Federal Government and all provincial governments. The General Agreement, operative until 1965, provided a more detailed interpretation of the Act and established an operating policy. The first Federal-Provincial conference on ARDA, held in November 1964, resulted in the acceptance of a new General Agreement to come into effect on Apr. 1, 1965, covering ARDA operations until 1970; the total federal contribution was raised from \$50,000,000 to \$125,000,000, and an additional \$50,000,000 Special Fund for Rural Economic Development was established to implement major projects that are part of comprehensive development programs in specially designated areas.

The ARDA legislation arose out of recognition of a national interest in achieving better land use, improving the viability of farm units which are at present uneconomic, and of improving income and employment opportunities in rural areas. In many rural areas of Canada, income and living standards are unacceptably low and present land use is faulty or inefficient. To some considerable degree these economic, social and conservation problems, which interact to produce an adverse effect on rural standard of life, arise from farm mechanization; the more efficient, highly mechanized farmers, with adequate land and operating capital, are able to maintain profitable farming operations notwithstanding a relatively low market price for farm produce and the operators of smaller, less mechanized farms are thereby placed at a severe disadvantage. As a result, the number of farms in Canada has decreased since 1931 from about three quarters of a million to fewer than half a million and the trend toward farm consolidation and abandonment is continuing.

The Agricultural Rehabilitation and Development Act is enabling legislation, intended to be complementary and supplementary to existing federal and provincial legislation in respect of renewable resources and rural social and economic development. It is intended to aid in the correlation and expansion of existing programs, and to fill substantial gaps where current programs do not meet present needs. It has been clearly recognized that, in addition to improved conservation and resource utilization and general economic stimulation, a social process of community development is essential—a process whereby local citizens organize to bring together local institutions and employ the technical counsel of university, professional and governmental agencies to study their physical and economic resources and the capabilities of the people; subsequently developing comprehensive economic and social plans to be implemented co-operatively by all levels of government and private organizations.

Under the ARDA program up to Mar. 31, 1965, 735 projects had been approved; their estimated sharable cost was \$64,477,000, of which the Federal Government portion was \$3,277,000. These included 211 alternate land-use projects, 207 soil and water conservation projects, 50 rural development projects, and 267 research projects. Federal commitments in respect of approved ARDA projects in each province were as follows:—

	\$
Newfoundland.....	1,080,000
Prince Edward Island.....	330,000
Nova Scotia.....	974,000
New Brunswick.....	755,000
Quebec.....	11,851,000
Ontario.....	2,672,000
Manitoba.....	3,741,000
Saskatchewan.....	7,304,000
Alberta.....	2,537,000
British Columbia.....	2,033,000

Additional solely federal ARDA expenditures totalled \$1,242,000.

Typical of the major federal-provincial projects of soil and water conservation and land-use projects under ARDA were: development of the Belmont community pasture in Prince Edward Island at a cost of \$110,000; land clearing for development of submarginal land for blueberry production in Roberval County in Quebec at a cost of \$207,000; acquisition of marginal land in seven counties of Ontario for forestry, wildlife and recreation at a cost of \$1,689,000; development of the Bechard flood control project in Saskatchewan at a cost of \$103,000; and rehabilitation of the Summerland Municipality irrigation system in British Columbia at a cost of \$150,000. Research programs vary from a simple study of types of looms suitable for cottage industry, costing \$1,000, to complex regional studies such as the inventory of natural resources and appraisal of socio-economic conditions in the Lower St. Lawrence Rural Development Region, costing \$1,700,000.

The Canada Land Inventory.—The Canada Land Inventory being co-ordinated by the ARDA Administration has been made possible by the extensive soil classification work undertaken in Canada over the past half-century. The co-operative Soil Surveys, which have been under way since 1935, are staffed by soil specialists of federal and provincial governments and universities and are supported by all senior governments.

For several decades the Soil Surveys have been classifying and mapping land according to its inherent characteristics. Most of the agricultural areas have been mapped at varying scales and degrees of intensity, and maps and reports have been published providing much fundamental information on Canadian soils. Although designed to meet the needs of the agricultural industry, the Surveys provide information that can often be used as a basis for assessment of the capability of land for various possible alternative uses. A second type of land classification, according to its present use, has been carried out over much of Canada, particularly by means of the land-use mapping program of the Geographical Branch of the federal Department of Mines and Technical Surveys which began in 1950. The Dominion Bureau of Statistics, the Economics Division of the Canada Department of Agriculture, and the statistical agencies of the provinces also provide information on the social and economic factors of land use.

The Canada Land Inventory carries out a third type of land classification—according to its assessed capability for different uses. Increasing competition for the use of land has led to recognition by governments of the need to assess land capability and apply this information to land-use policy and programs. On the basis of much fundamental work in classifying and mapping soils, gathering climatic data, studying present uses, and compiling statistics on productive capacity, it is now possible for scientists in the fields of agriculture, forestry, recreation and wildlife to rate the capability of land, employing classification systems that provide a basis for effective land-use planning in Canada. In October 1963, the Canada Land Inventory was approved as a means of accomplishing this; the Inventory is being planned and implemented co-operatively by the Federal Government and all provincial governments individually with the ARDA Administration functioning as co-ordinators. The Federal Government will reimburse each province for all additional costs it incurs in the conduct of the Inventory.

The broad objective of the Canada Land Inventory is to classify lands in and adjacent to the settled portions of Canada as to their use capabilities, and to obtain a firm estimate of the extent and location of each class. These lands are currently being classified according to: their physical capabilities for use in agriculture, forestry, recreation and wildlife management; their present use; and socio-economic factors relative to their present use. This vast amount of information is to be gathered, stored on computer tapes, analysed and published in such a way that the Inventory will become a working tool in resource use and rural development programs across Canada.

By 1965, the federal and provincial ARDA organizations had established co-ordination among the approximately 100 agencies of the 11 senior governments which are concerned with the Inventory, and with the numerous universities, non-governmental organizations and private companies and individuals who are participating in the Inventory.

Section 3.—Federal and Provincial Co-ordinating Committees

During the two-year period of preparation for the "Resources for Tomorrow" Conference of October 1961, the Federal Government and all provincial governments established interdepartmental committees of departments concerned with natural resources. Subsequent to the Conference, most of these committees continued—usually in an altered form—to meet the newly emerging need for co-ordination among departments for the implementation of the ARDA program. The committees are as follows.

Federal Government.—The Federal Interdepartmental Co-ordinating Committee, comprised of the Ministers of eight departments—Agriculture, Forestry, Fisheries, Finance, Labour, Industry, Citizenship and Immigration, and Northern Affairs and National Resources. The Interdepartmental Advisory Committee for ARDA, comprised of the Deputy Ministers of these Departments. In practice, co-ordination in detail is achieved through sub-committees or *ad hoc* committees.

Newfoundland.—ARDA Co-ordinating Committee, comprised of four Deputy Ministers of the resource departments and education.

Prince Edward Island.—The Ministerial Committee for ARDA, comprised of the Premier and Ministers of the resource and tourist development, education, and municipal affairs departments. The Deputy Ministerial Committee for ARDA, comprised of the Deputy Ministers of resource and education departments. County ARDA Committee.

Nova Scotia.—The Resources Development Co-ordinating Committee, comprised of four Deputy Ministers of the agriculture, municipal affairs, lands and forests and attorney general departments, and four senior officials. The Inter-departmental ARDA Committee, comprised of 21 senior officials of the resource, planning and social service departments, ARDA Departmental Committees of the departments of agriculture and lands and forests.

New Brunswick.—Provincial ARDA Committee, comprised of eight Deputy Ministers of the agriculture, lands and mines, fisheries, industry, labour, public works, municipal affairs and youth and welfare departments, the General Manager of the Electric Power Commission, an officer of the Research and Productivity Council, an economic adviser, and two federal officials as consultants.

Quebec.—An interdepartmental committee composed of five Ministers; the ARDA Administration; the Permanent Committee for Resource Development, composed of the Minister of Agriculture and Colonization and the Deputy Ministers of Agriculture and Colonization, Industry and Commerce, Natural Resources, Tourism, Fish and Game, Lands and Forests, and Municipal Affairs; the Economic Planning Council of Quebec, composed of five regular and five associate members selected from the senior officers of the government.

Ontario.—An ARDA Directorate established under the Agricultural Rehabilitation and Development Act of Ontario (1962-63) consists of ten Deputy Ministers or senior officers from seven departments and the University of Guelph. The Directorate reports to the Government of Ontario through the Minister of Agriculture.

Manitoba.—The Manitoba Development Authority is comprised of the Premier, four Ministers, five Deputy Ministers and an Executive Secretary. A Deputy Ministers' Committee on Rural Development and ARDA. A Technical Committee to carry out the instructions of the Deputy Ministers' Committee. Advisory Committees to the Deputy Ministers on Rural Development, Land Use and Soil and Water Conservation.

Saskatchewan.—The Committee on Agricultural and Renewable Resources Development, comprised of the Deputy Ministers of the Departments of Agriculture, Natural Resources, Municipal Affairs, and Education, and a representative of the Water Resources Commission. The Committee is chaired by the Secretary of the Economic Advisory and Planning Board.

Alberta.—The Alberta ARDA Co-ordinating Committee, comprised of the Deputy Ministers of four resource departments, the Director of Lands, and the ARDA Co-ordinator. The Alberta ARDA Advisory Committee, comprised of 14 senior provincial officials of various resource departments and two federal officials.

British Columbia.—The Ministerial Committee for ARDA, comprised of three Ministers representing five natural resources departments. Deputy Ministers Committee for ARDA, comprised of the Deputy Ministers of five resource departments.

Section 4.—Other Federal Resource Agencies and Their Federal-Provincial Programs

The Department of Northern Affairs and National Resources.—This Department engages in many diverse activities including administration of national parks, some of the aspects of water resources under federal jurisdiction, administration of the resources of the Yukon and Northwest Territories, wildlife administration (particularly the Migratory Birds Convention Act) and administration of other natural resources under federal jurisdiction. The Water Resources Branch, the National Parks Branch and the Northern Administration Branch, in particular, deal with natural resources and administer the federal-provincial agreements and programs, which are as follows. *Roads to Resources Agreements*: made with all provinces between 1958 and 1960, involve construction of access roads mainly to mining, lumbering and tourism areas; total federal expenditure to Mar. 31, 1965 was approximately \$59,000,000, matched by equal provincial expenditure. *Canada Water Conservation Assistance Act* (see p. 448). *Fraser River Board*: established in 1949 to study flood control, hydro development, etc. The Federal Government has spent about \$1,800,000 on research and other activities to date; British Columbia has spent a similar amount.* *Columbia River Agreements*: signed in 1963 and 1964 to define the rights and obligations to British Columbia under the Columbia River Treaty and related arrangements. *Prairie Provinces Water Board*: comprised of one member from each of the Prairie Provinces and two members from the Federal Government; its function is to recommend water allocation from interprovincial streams to each province. *Nelson River Investigation*: established in 1963 to study power sites on the river and the means of achieving their development. The Nelson River Programming Board and Administrative Committee, the former comprising three federal and three Manitoba members and the latter two members each, have completed preliminary engineering studies of power potential of the system at a cost, up to Mar. 31, 1965, of approximately \$1,281,000 to the Federal Government and a similar amount to Manitoba. *Greater Winnipeg Floodway Program*: an agreement with Manitoba in 1962 provides for the construction of a floodway for the Red River, to extend from St. Norbert past Lockport, at a cost to the Federal Government of nearly \$37,000,000 and a total cost of about \$63,000,000; \$15,461,000 had been spent by the Federal Government by 1965. *Ottawa River Engineering Board*: established to conduct joint hydrologic studies by the Federal Government, Ontario and Quebec of the storage and regulation possibilities in the Ottawa River Basin from the viewpoint of all interests affected, including uses for power, logging, navigation, municipal uses, etc. *Study of Flood Flows*: established in 1964 between Nova Scotia and the Federal Government for a one-year program to study the size, location and frequency of flood flows in Nova Scotia water-courses.† *Hydrometric and Sediment Survey*: beginning in the 1930's this program, varying between provinces, provides for sedimentation and hydrometric studies in most provinces. *Grand Rapids Habitat Study*: involves examination of the Moose Lake area of Manitoba on the effect of the Grand Rapids dam on wildlife habitat, particularly that of muskrat and migratory birds. *Fur Conservation Agreements*: established between the Federal Government‡ and Ontario, Manitoba and Saskatchewan for the construction of water control works to improve management of fur bearing animals, chiefly muskrat, in marsh-land areas. *Wildlife Inventory Program*: joint studies are carried out informally, e.g., the waterfowl inventory conducted by the Federal Government, the United States Fish and Wildlife Service, the Prairie Provinces and the Provinces of British Columbia, Ontario and Newfoundland, and the caribou inventory by the Federal Government and the governments of Saskatchewan, Manitoba, Quebec and Newfoundland. *Trans-Canada Highway*

*The Department of Fisheries is also a member of the Fraser River Board.

†The federal Department of Transport is also participating in this study.

‡The Indian Affairs Branch of the Department of Citizenship and Immigration is also involved in these agreements and works.

Campgrounds and Picnic Areas Program: established in 1958 between the Federal Government* and all provinces except Ontario and Quebec to provide improved tourist facilities, with the Federal Government sharing costs equally to a maximum of \$2,000,000; \$1,051,242 had been spent by 1965.

The Canada Department of Agriculture.—This Department is concerned with physical and economic research relative to the agricultural industry, grading and inspection, disease and pest control, soil and water conservation, marketing, farm credit and other related activities. Federal-provincial natural resources agreements administered by the Department, additional to certain PFRA and MMRA agreements, are as follows. *Soils Survey:* a cost-sharing program conducted co-operatively since 1935 with most of the provinces to classify soils according to their physical characteristics, to assess their usefulness for agriculture, and to publish the information in the form of maps and reports. A number of universities are actively involved in the program (see p. 450). *Lime Assistance Program:* an annual agreement applicable to British Columbia, Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland, beginning in 1943, to reduce acidity of agricultural soils by application of limestone or other alkali material. Federal contributions have amounted to about \$18,354,000 since inception. *Land Clearing and Bogland Reclamation:* a joint federal-Newfoundland program to develop Newfoundland's extensive boglands and arable forest lands for crop and pasture use and for gardens. Since it began in 1953, the federal contribution has been \$1,425,000, matched by the province. This program is being carried forward under ARDA.

The Department also participates in the East Slope (Alberta) Watershed Research program, the Greater Winnipeg Floodway program, and the International Pembina River Engineering Board.†

The Department of Mines and Technical Surveys, the Atomic Energy Commission, the National Research Council and the Fisheries Research Board.—These departments and agencies, in co-operation with the Ontario Government, the federal Department of Fisheries, the University of Toronto, the United States National Science Foundation, and private sources, support the Great Lakes Institute in its comprehensive program of research on the Great Lakes fisheries problems and other relevant problems. The Institute, together with the international Great Lakes Fisheries Commission (relative to lamprey control), co-operates in work under an agreement made in 1960 between the Federal and Ontario Governments to fulfil the recommendations of the federal-provincial Great Lakes Fisheries Co-ordination Committee. The Federal Government conducts general fisheries research and lamprey research and control on Lake Superior, and economic and technological studies on all the Great Lakes. Ontario conducts general fisheries research on Lakes Huron, Erie and Ontario, collects data and does hydrographic work. A number of other federal, provincial and non-governmental agencies support the Institute in various ways. Co-ordination is achieved through the federal-provincial Committee for Ontario Fisheries.

The Department of Fisheries.—This Department is responsible for administration of the Fisheries Act which, by agreement with Alberta, Saskatchewan, Manitoba, Ontario and Quebec, is applied by provincial administrations of these provinces. The Department of Fisheries is the federal body which, with the research and co-ordination assistance of the Great Lakes Fisheries Institute, fulfils the federal commitments under the federal-Ontario agreement of 1960.

The Department of Transport and the Department of National Health and Welfare.—These departments extend assistance in various forms to provincial and municipal governments for the study and abatement of air pollution. They have, in

* The Department of Labour Winter Works Program is also involved in this program.

† The Department of Northern Affairs and National Resources participates in the East Slope and Pembina River programs; the Departments of Transport and Forestry also participate in the East Slope program.

co-operation with municipal and provincial organizations, established an air sampling network to collect data on pollutants in urban centres and correlate them with meteorological data.

The Department of Citizenship and Immigration.—In general, the federal-provincial agreements in which this Department participates concern wildlife as a factor in Indian income opportunities. The agreements include: the Sipanok Fur Area agreement, which is mainly concerned with muskrat production; the Fur Conservation Agreements with Ontario, Manitoba and Saskatchewan* under which several million dollars have been spent in joint conservation programs; the federal-Ontario resources management program for the Bruce Peninsula; a federal-Ontario agreement whereby the Ontario Government operates a fur farm on Akimiski Island of James Bay on behalf of the Northwest Territories Council and the Indian Affairs Branch; the Beckwith Island grouse study in Georgian Bay; and various projects for industrial development of resources (particularly fish) in the interest of Indian communities.

The Department of Forestry.—This Department is concerned primarily with promoting effective management of Canada's forest resources and improving wood utilization, and to these ends conducts comprehensive programs of research and undertakes, promotes and recommends measures to encourage application of desirable methods. In addition to the federal-provincial resource agreements under ARDA, the Department of Forestry is responsible for federal administration of joint programs as follows. *Composite Forestry Agreements:* beginning in 1951 and in 1960 provided for in the Department of Forestry Act, the agreements cover federal assistance in five areas of forestry—inventories, reforestation, fire protection, access roads and trails, and forest stand improvement. The annual allotment provided by the Federal Government is \$7,910,000, allocated between provinces according to a formula based on productive forest area. *Forest Stand Improvement Program:* established under federal-Nova Scotia agreement in 1961 for the improvement of Cape Breton Island forest stands and to provide employment for coal miners affected by mine closures. *Eastern Rockies Forest Conservation Area:* a 25-year federal-Alberta agreement beginning in 1947 and revised in 1951 and 1957 provided for conservation of 9,000 sq. miles of forest on the headwaters of the Bow, Crowsnest and Clearwater Rivers, to ensure maximum water flow in the Saskatchewan rivers. The Federal Government provided the capital costs of \$6,200,000, and the province maintains the projects. *Fire Protection Arrangements:* include federal-Alberta agreements for fire detection and suppression in the Rocky Mountains Forest Reserve and similarly on the boundary areas of Waterton Lakes, Banff, Jasper and Wood Buffalo National Parks. *Forest Research Agreements:* include federal-Ontario agreements for forest research, under an advisory committee composed of five federal and five provincial members, to develop experiments and test procedures; operation of the Forest Insect Laboratory at Sault Ste. Marie and the Forest Pathology Laboratory at Maple, Ont. *Budworm Spraying Program:* established in 1953 as a means of controlling spruce budworm infestation by a spraying program conducted by Forest Protection Ltd., a federal-provincial-industry organization composed of four pulp and paper companies, the Government of New Brunswick and the Federal Government. More than 24,000,000 acres have been sprayed at a total cost of over \$17,200,000, of which the Federal Government has contributed \$5,529,000.

* The Department of Northern Affairs and National Resources is also a party to this agreement.

CHAPTER XI.—AGRICULTURE

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

Section 1.—Federal Government in Relation to Agriculture*

The federal Department of Agriculture dates from Confederation. It was established in 1867 as an outgrowth of a Bureau of Agriculture set up in 1852 by an Act of the Legislature of the Province of Canada. The Department derives its authority from the British North America Act, 1867, which states in part that "in each province, the legislature may make laws in relation to agriculture in the province" and that "the Parliament of Canada may from time to time make laws in relation to agriculture in all or any of the provinces; and any law of the legislature of a province relative to agriculture, shall have effect in and for the province as long and as far as it is not repugnant to any Act of the Parliament of Canada".

A Department of Agriculture with a Minister of Agriculture at its head was accordingly established as part of the Government of Canada. Departments of Agriculture headed by provincial Ministers of Agriculture were also set up by the provincial governments, except in the Province of Newfoundland where agricultural affairs are dealt with by the Agricultural Division of the Department of Mines, Agriculture and Resources. The agricultural affairs of the Yukon and Northwest Territories are administered for the federal Government by the Territorial Division, Northern Administration Branch, Department of Northern Affairs and National Resources.

Subsection 1.—Services of the Canada Department of Agriculture

The activities of the Canada Department of Agriculture fall into three broad groups: research, promotional and regulatory services, and assistance programs. Research work is aimed at the solution of practical farm problems through the application of fundamental

* Prepared (July 1965) under the direction of S.C. Barry, Deputy Minister of Agriculture, Ottawa.

scientific research to all aspects of soil management and crop and animal production. Promotional and regulatory services are directed toward the prevention or eradication of crop and livestock pests and the registration of chemicals and other materials used to achieve that end and toward the inspection and grading of agricultural products and the establishment of sound policies for crop and livestock improvement. Assistance programs cover some of the sphere of soil and water conservation, price stability, provision of credit, rural rehabilitation and development, and crop insurance and income security in the event of crop failure.

The Department has four main Branches—Research, Health of Animals, Economics, and Production and Marketing—and its organization includes a number of smaller units—the Agricultural Stabilization Board (see p. 461), the Agricultural Products Board, the Prairie Farm Rehabilitation Administration (p. 446), Crop Insurance (p. 462), the Information Division and Departmental Administration. Agencies closely allied with the Department and responsible to the Minister of Agriculture are the Farm Credit Corporation (p. 464) and the Board of Grain Commissioners (see Part II of Chapter XXI).

The work of the Research Branch and the research activities of the Health of Animals and Economics Branches are outlined in the special article "Contribution of the Canada Department of Agriculture to Modern Agricultural Science", on pp. 457-461. Other functions of the Health of Animals and Economics Branches and the activities of the Production and Marketing Branch, the Information Division and Departmental Administration are as follows.

Health of Animals Branch.—This Branch administers the Animal Contagious Diseases Act, the Meat Inspection Act and the Humane Slaughter of Food Animals Act, and operates laboratories for the study of animal diseases. Contagious diseases of animals are controlled through preventive measures of inspection and quarantine of imported livestock and restricted commodities such as meat, farm products and other possible sources of infection; through conducting disease eradication programs, notably of bovine tuberculosis, brucellosis and Johne's disease; through the control and eradication of serious animal diseases when outbreaks occur; and through inspection and certification as to health of livestock for export. The Meat Inspection Division conducts ante-mortem and continuous post-mortem examination of animals slaughtered at packing plants that market their meat products outside of the province in which they operate, ensures maintenance of sanitary standards during processing of the products, accurate labelling, and proper kind and use of ingredients and preservatives. The Division ensures, also, in these plants that the animals are slaughtered in a humane manner. Animal pathology laboratories across the country, in addition to their research function (see p. 458), manufacture diagnostic reagents and biological products and provide analytical and diagnostic services for diseases of domestic and wild animals and for determination of the soundness of meat food products.

Economics Branch.—This Branch collects, analyses and interprets economic information needed to formulate and administer departmental programs and policies and does intelligence and research work (see p. 458) designed to increase efficiency in agricultural production and marketing and to guide farmers in making needed adjustments in farm organization and operation. It acts as an economic and statistical research agency for the Agricultural Stabilization Board, the Prairie Farm Rehabilitation Administration and other bodies, and assists in any economic undertakings with which the Department is concerned. The Branch is also closely associated with the work of the Food and Agriculture Organization of the United Nations, the UN/FAO World Food Program, the General Agreement on Tariffs and Trade, and the Directorate of Agriculture of the Organization for Economic Co-operation and Development.

Production and Marketing Branch.—The Production and Marketing Branch conducts many of the promotional and regulatory functions of the Department. Six specialized divisions administer legislation and policies in the production and marketing of

livestock, poultry, fruits and vegetables, dairy products and plant products, and policies in connection with the control of disease in plants. A General Service Division supplements and complements the specialized divisions in matters of common concern.

The *Livestock Division* administers legislation dealing with the grading of meat, wool and fur, with the registration of livestock pedigrees, with performance testing of cattle and hogs and with the supervision of racetrack betting. Other activities include the promotion of livestock improvement and the compilation of market statistics. The *Poultry Division* carries out the policies of the national poultry breeding program, including Record of Performance for poultry and hatchery inspection, and administers the regulations for the grading of poultry products. The *Fruit and Vegetable Division* administers legislation having to do with the grading of fruits and vegetables in both fresh and processed form, maple products and honey. The Division is responsible for the licensing of interprovincial and international dealers and brokers who deal in fresh fruits and vegetables. The *Dairy Products Division* administers the Cheese Factory Improvement Act and legislation covering grades and standards for dairy products, including butter, cheese, concentrated milk products and ice cream. The *Plant Products Division* administers Acts and regulations respecting seeds, feedstuffs, fertilizers and pest-control products, conducts field inspections and maintains regional testing laboratories. The *Plant Protection Division* is responsible, under the Destructive Insect and Pest Act, for safeguarding against the introduction of serious plant insects or diseases into Canada or their spread in Canada, for certifying freedom from disease and pests in plant exports, and for seed potato certification.

The *General Service Division*, through its *Inspection Service*, maintains inspectors in the principal marketing areas to make spot checks on retail outlets to see that food products meet prescribed standards of quality and grade. Cargo inspectors at the main Canadian ports check the handling of goods moving to export markets. A *Subsidies Section* administers the payment of subsidies for the construction of public cold storage facilities. This Division also provides management assistance and administrative services to the *Markets Information Section* which compiles and distributes market information respecting livestock, meat and wool, dairy products, eggs and poultry, and fruits and vegetables; and the *Consumer Service Section* which co-operates with the commodity divisions in developing the market for Canadian foods and in interpreting the grading and inspection regulations to the general public.

Information Division and Departmental Administration.—The Information Division gathers and publishes information arising from research work and the development of regulatory programs of the Department. Publication is through the printed word, press and radio releases, motion pictures, television and exhibits. The general business management of the Department is undertaken by the Departmental Administration, the duties of which also embrace Emergency Measures Planning and the Departmental Library; the main emphasis of the Library's collection is, of course, on agriculture but extends also to the life sciences.

CONTRIBUTION OF THE CANADA DEPARTMENT OF AGRICULTURE TO MODERN AGRICULTURAL SCIENCE*

Before World War II, each farm worker in Canada produced enough food to feed ten people; each now feeds 32, and Canadians spend a smaller percentage of their take-home pay on food than other comparably developed Western nations. Much of this increased efficiency of Canadian agriculture may be attributed to the contribution of research, and the Canada Department of Agriculture (CDA) carries out about 70 p.c. of the agricultural research in Canada, the remainder being done by universities, provincial governments and private industry.

* Prepared in the Information Division, Canada Department of Agriculture, Ottawa.

Federal Agricultural Research Organization.—CDA research activities are undertaken mainly by the Research Branch at some sixty centres across the country, although important contributions are also made by the Economics Branch, the Health of Animals Branch and the Grain Research Laboratory operated by the Board of Grain Commissioners for Canada. About 1,000 research workers are employed by the Department and their specialties run the gamut of scientific agriculture from genetics to engineering.

The bulk of the research is directed from *Research Branch* executive headquarters at the Central Experimental Farm in Ottawa. Also located there are the statistical, engineering and analytical chemistry research services, together with six of the eight institutes for research on animals, food, entomology, microbiology, plants, soils, biological control, and pesticides. Throughout the ten provinces there are 13 research stations, 27 experimental farms, a laboratory and a number of substations.

Originally, the main task of the experimental farms was to determine the potential of the various combinations of soil and climate for producing crops and maintaining livestock, and to develop and test varieties, breeds and management practices suitable for each area. Today's federal research program continues with this early work but is designed to meet new problems, including tailoring agricultural products to meet the specific needs of domestic and export markets. The accent is on promoting greater efficiency in production and diversification of cropping practices.

Research and advisory services on economic matters affecting agriculture are performed by the *Economics Branch* with the object of increasing efficiency in agricultural production and marketing and of facilitating the adjustment of farming operations to changing situations and thereby improving farm income and living conditions. Research is undertaken to assist farmers in the management of their farms and to provide information for use by the government in the development of agricultural policies. With respect to farm production, studies are carried out on the use and management of land, water, human and capital resources in agriculture, on the financing of farming operations, agricultural insurance, agricultural adjustments, farm income and expenditures, and farm efficiency. In the marketing and trade area, studies are undertaken to increase marketing efficiency, to improve agriculture's position in international trade and to assist in carrying out the agricultural stabilization program. Such studies include short-term and long-term forecasts of demand and supply, market structure and potential and alternative trading arrangements.

The Animal Pathology Division of the *Health of Animals Branch* consists of the Animal Diseases Research Institute at Hull, Que., the Animal Diseases Research Institute (Western) at Lethbridge, Alta., and seven branch laboratories. The Division conducts research and investigations on infectious diseases of animals and produces such products as tuberculin, johnin and mallein, *Brucella abortus* antigen, for the use of the Health of Animals Branch in the control and elimination of tuberculosis, brucellosis, etc. The Division provides a diagnostic service to the other Divisions of the Branch and to the livestock industry in general, and conducts a training program for departmental officers and veterinarians from other lands.

Division research is, in the main, for findings that can be applied in the control and elimination of disease, for example, the development of precise and rapid diagnosis. Tests have been developed that enable the Division to diagnose hog cholera within a matter of a few hours after receiving specimens, thus permitting the immediate implementation of control measures. This is a far cry from older methods that took from seven to 14 days and sometimes as long as a month. In addition, the diagnostic service facilitates the export of livestock to other countries; to satisfy the health requirements of countries trading with Canada, the laboratories test for brucellosis, leptospirosis (as many as 12 serotypes), vibriosis, trichomoniasis and other infectious diseases. Imported animals are also tested for the presence of infectious diseases. Another service of importance to the livestock

industry is the exhaustive check made on biological and other products that are offered for sale for veterinary and agricultural use, to ascertain that the products will be effective for the purposes intended and that the disease or diseases which they are supposed to prevent or treat actually do occur in Canada.

The *Grain Research Laboratory* provides scientific services required in the administration of the Canada Grain Act. It carries out annual studies of the quality of the new crop cereals, maintains a continuous check of the quality of cereal grains as they move forward from the farm to marketing positions and plays a major role in testing (prior to licensing) the quality of plant breeders' varieties of various cereals. A comprehensive program of basic and applied research relating to the quality of Canadian cereal grains is an important task of the Laboratory.

Improvement of Crops.—Canada's main crop for generations has been wheat, of which 723,000,000 bu. were grown in 1963 and 600,000,000 bu. in 1964. The efficiency of high-quality wheat production in this country stems directly from the help the grain growers have received from research. Without the new varieties produced by plant breeding, it would be unprofitable to grow wheat on large areas of the wheat belt. Rust-resistant wheats prevented the loss of an estimated 250,000,000 bu. in 1962 alone and varieties resistant to sawfly have prevented substantial losses almost every year. Comparable improvements in oats and barley have enabled the farmer to continue to grow these valuable cereals despite the incidence of pests and diseases, drought and short growing seasons.

Because of the contribution of livestock returns to farm incomes in all provinces, it also became imperative to seek better grasses and legumes and to adapt them to the various regions of Canada that differ in climatic and soil conditions. Some success is being confirmed in many of the varieties advanced for this purpose but the impact of Climax timothy on forage crop production in the past decade deserves special mention. Developed by the CDA, Climax grows in all provinces and yields about 12 p.c. more forage than commercial timothy, long the chief grass of Eastern Canada. It is estimated that the increased tonnage and higher quality of Climax is worth about \$5,000,000 a year to Eastern Canada farmers.

Research in other crops, notably oil seed plants and potatoes, has resulted in new varieties with resistance to diseases, with improved quality and suitability for specific processing, and adapted to the different growing areas.

Investigation into the storage and processing of crops has been accelerated in recent years and has led to valuable innovations in the fruit and vegetable industries, and in the protection of stored grain. Technological improvements have been made in the harvesting and storage of tobacco; while the search for answers to perplexing problems, such as "weather fleck" and the use of chemicals for sucker control, continues to be pressed, tobacco growing has been introduced successfully into completely new areas of Eastern Canada in recent years. Some soybean varieties now widely grown have emerged from Canadian research. Wilt, rust pasmo disease, lodging and late maturity are some of the posers that have been mastered in flax. Plant breeders are helping to establish rape as a valuable oilseed crop and, on a smaller scale, safflower and sunflower crops for edible uses. More than 80 new varieties of crops have been developed and put into commercial production in the past five years.

In livestock, the main lines of progress are through genetics and nutrition and the main subjects are dairy and beef cattle, pigs, poultry and sheep. The advantages of selective breeding have been evidenced through the records of animals tested for many years. CDA itself developed a new breed of hog, the Lacombe, which is proving a worthy addition to the old-time breeds. Romnelet, a range-type sheep, was also an outcome of federal breeding programs. Crosses of several meat-type strains of chickens made at federal institutions have led to performance superior to that of pure strains.

Enlightened breeding, feeding and management practices have been responsible for substantial increases in yields of milk per cow and in the egg production of the national poultry flock. Beef cattle, hogs, and turkey and chicken broilers are being brought to market weight earlier as producers take advantage of scientific feeding. Livestock rations may now include vitamins, minerals and antibiotics for pigs and poultry, and stilbestrol for beef steers, which are combined with proteins and other elements to promote more efficient utilization of feed. It has been estimated that if these improvements were applied to all the current volume of feed, 1,000,000 market pigs, 300,000 market cattle and 43,000,000 doz. eggs would be added to annual production.

Extensive studies on the causes and control of diseases and parasites of livestock, fur bearing animals and wildlife are carried on with the result that epidemic outbreaks rarely occur and when they do are quickly suppressed. Live animals and meats must attain the high standards required in the export trade.

A matter of constant concern is the protection of crops from diseases and pests. Chemicals have proved to be potent control weapons. More than 24,500,000 acres were sprayed in 1964 to control weeds. About \$14,600,000 worth of herbicides were sold and an equal amount was spent on other chemicals for control of insects and diseases. Extensive research must be carried on constantly to assure the proper application of these chemicals, so that plant and animal produce is safe for human food.

There is also a continuing search for other methods of control. Many weeds can be eradicated by proper tillage and cropping methods. A few have been controlled by insects which feed on them exclusively and destroy them. Fungus diseases may be checked by developing resistant varieties of crops. In biological control, parasites or predators are produced and released to prey on certain insects and eliminate them. Sterilization of male insects by radiation or chemical means is another method of reducing insects of various kinds.

An area of special interest is that of farm mechanization in which there has been tremendous development in the past sixty years. Census figures show farm machinery valued at \$108,666,000 in 1901, \$596,046,000 in 1941, \$1,933,312,000 in 1951 and \$2,568,632,000 in 1961. The value has increased over nineteen times in the period and the greatly increased use of constantly improving machinery has had a profound effect on farm management, both physically and economically. The Research Branch is taking steps to expand its studies of mechanization at the Engineering Research Service in Ottawa and in the Maritime Provinces and universities are being encouraged to study the subject more intensively.

Soil surveys are conducted in all provinces in Canada in co-operation with provincial departments of agriculture and the universities. Soils are examined and classified as to their chemical and physical characteristics and potential productivity. This information is of inestimable value in setting up land uses under the Agricultural Rehabilitation and Development Act administered by the Department of Forestry. Soil fertility continues to receive attention on a national basis and is under study at all experimental farms and at many research stations. The Research Branch also co-operates very closely with the universities in this national project.

Agrometeorology, a relatively new discipline, is opening new opportunities to growers to make the most use of the heat, light and moisture available in each farm area.

As previously stated, while most agricultural research in Canada is carried out by the CDA, important programs are also undertaken by the provincial governments and agricultural colleges. Close liaison exists between these different agencies to avoid duplication and to ensure that the services offered by the Federal Government through provincial extension officers is of the kind farmers need. Federal research establishments across the country are represented on provincial committees concerned with field crop varieties,

fertilizer practices, soil fertility, spray programs, field crop and animal management, and horticulture. Such collaboration ensures that new practices discovered by research are brought quickly to the attention of extension groups to recommend for local use.

Subsection 2.—Farm Assistance Programs

Basic to the concept of Canada's national agricultural policy is the premise that a stable agriculture is in the interests of the national economy and that farmers as a group are entitled to a fair share of the national income. In pursuit of these objectives, the Department of Agriculture has carried on, over a long period, a program designed to aid agriculture through the application of scientific research and the encouragement of improved methods of production and marketing. Over the years, as conditions have warranted, programs have been initiated to deal with special situations such as the Prairie Farm Rehabilitation Act (see p. 446) to deal with the results of the drought in the 1930's; the Prairie Farm Assistance Act (p. 466) to mitigate the effects of crop failure; Feed Grain Assistance Regulations (p. 466) to assist in the movement of western feed grains to Eastern Canada and British Columbia; and the Maritime Marshland Rehabilitation Act (p. 448) to save valuable soil in the Maritime Provinces.

Although much has been accomplished and is still being accomplished by these measures, changes since World War II have dictated a new approach to some problems. Large-scale mechanization was the sequel to the reduction of manpower available to farmers; the number of farms declined but the size of farms increased; marketing and income problems took different forms. Legislation enacted to meet these situations include price support (Agricultural Stabilization Act), crop insurance (Crop Insurance Act), resource development (Agricultural Rehabilitation and Development Act) and credit facilities (Farm Improvement Loans Act, Prairie Grain Advance Payments Act, Farm Credit Act and Farm Machinery Syndicates Credit Act). These measures, with the exception of the Agricultural Rehabilitation and Development Act, (see pp. 448-450), are described individually below.

Agricultural Stabilization Act.—The Agricultural Stabilization Act (SC 1958, c. 22, proclaimed Mar. 3, 1958) established the Agricultural Stabilization Board and repealed the Agricultural Prices Support Act, 1944. The Board is empowered to stabilize the prices of agricultural products in order to assist the agricultural industry in realizing fair returns for labour and investment, and to maintain a fair relationship between prices received by farmers and the costs of goods and services that they buy.

The Act provides that, for each production year, the Board must support, at not less than 80 p.c. of the previous ten-year average market or base price, the prices of nine commodities (cattle, hogs and sheep; butter, cheese and eggs; and wheat, oats and barley produced outside the prairie areas as defined in the Canadian Wheat Board Act). Other commodities may be supported at such percentage of the base price as may be approved by the Governor in Council. Since the Act came into force, the following farm products, other than the nine named commodities, have been supported at one time or another: honey, potatoes, soybeans, sunflower seeds, sugar beets, tobacco, turkeys, apples, peaches, sour cherries, apricots, raspberries, asparagus, tomatoes, milk for manufacturing and skim milk powder. The Board may stabilize the price of any product by an offer-to-purchase, by a deficiency payment or by making such payment for the benefit of producers as may be authorized.

In stabilizing prices of certain commodities by means of deficiency payments, the price stabilization program has been assisting the agricultural industry to make production adjustments from a position of excessive supply to one of more normal relationship between supply and demand. The institution of limited deficiency payments by the Board assists in the adjustment of production in a relatively short time. During the period of adjustment, the Board guarantees a minimum average return to producers for a limited quantity of product.

During the seven fiscal years that the Act was in operation prior to Mar. 31, 1965, the cost of stabilization programs averaged \$57,000,000 a year. The Board has available a revolving fund of \$250,000,000. Losses incurred are made up by Parliamentary appropriations and any surplus is paid back to the Consolidated Revenue Fund. An Advisory Committee named by the Minister of Agriculture and composed of farmers or representatives of farm organizations assists the Board in its operations.

Crop Insurance Act.—To assist in making the benefits of insurance protection on crops available in all provinces, the Crop Insurance Act was passed in 1959. This Act does not set up any specific insurance scheme but rather permits the Federal Government to assist the provinces to do so by making direct contributions toward the cost of providing crop insurance. The initiative for establishing schemes to meet their own regional requirements rests with the provinces. Schemes may be organized on the basis of specific crops or areas within the provinces and agreements between the provinces and the Federal Government set out the terms of insurance coverage. By the end of May 1964, crop insurance legislation had been passed by Manitoba, Saskatchewan, Prince Edward Island, Nova Scotia and Alberta.

Contributions from the federal treasury are limited to 50 p.c. of the administrative costs incurred by a province and 20 p.c. of the amount of premiums paid in any one year. In addition, the Federal Government may make loans to any province equal to 75 p.c. of the amount by which indemnities required to be paid under policies of insurance exceed the aggregate of the premium receipts for that year, the reserve for the payment of indemnities, and \$200,000. As an alternative to such loans, the Federal Government in 1964 amended the Act to enable it to re-insure a major portion of the provincial risk in a program taken out under the Crop Insurance Act. Farmers insured under the Act are not eligible for payments under the Prairie Farm Assistance Act, nor are they required to pay the 1-p.c. levy on grain sales as provided for under that Act.

In 1964, 8,655 farmers received coverage under the Act for a total of \$18,713,000.

Farm Improvement Loans Act.—The Farm Improvement Loans Act (RSC 1952, c. 110), administered by the Department of Finance, is designed to provide credit by way of loans made by the chartered banks to assist in almost every conceivable purchase or project for the improvement or development of a farm and includes the purchase of agricultural implements, the purchase of livestock, the purchase and installation of agricultural equipment or a farm electrical system, the erection or construction of fencing or works for drainage on a farm, and the construction, repair or alteration of farm buildings including the family dwelling. Credit is provided on security related to the purchase or project and on terms suited to the individual borrower.

The legislation, originally operative for three years (1945-48), has been continuous by way of extensions usually for three-year periods. The latest extension was for the period July 1, 1965 to June 30, 1968. The maximum term of a loan and the interest rate remain at ten years and 5 p.c. simple interest, respectively. The borrower is required to provide from 10 p.c. to 33½ p.c. of the cost of his purchase or project, depending on the loan category to which it belongs. The Federal Government guarantees each bank against loss sustained by it up to an amount equal to 10 p.c. of loans granted by it in a lending period. This guarantee does not apply to any loan made after the aggregate of all loans made by all banks in a given period reaches an amount fixed by statute. The current maximum stands at \$700,000,000. By Dec. 31, 1964, 2,675 claims amounting to \$1,892,03 had been paid under the guarantee since the inception of the Act, representing a net loss ratio of less than one tenth of one per cent after recoveries have been taken into account.

By the end of 1964, \$1,253,743,699 or 82.1 p.c. of the total loans made had been repaid. The position at that time was as follows:—

<i>Period</i>	<i>Loans Made</i>	<i>Repayments¹</i>	<i>Balance Outstanding</i>
	\$	\$	\$
Mar. 1, 1945 to Feb. 28, 1948.....	33,605,576	33,605,576	—
Mar. 1, 1948 to Feb. 28, 1951.....	142,372,774	142,363,943	8,831
Mar. 1, 1951 to Mar. 31, 1955.....	190,449,006	190,397,881	51,175
Apr. 1, 1955 to Mar. 31, 1956.....	222,723,494	222,487,987	235,507
Apr. 1, 1956 to Mar. 31, 1959.....	239,064,072	237,721,919	1,342,153
Apr. 1, 1959 to June 30, 1962.....	346,911,334	315,101,866	31,809,468
July 1, 1962 to Dec. 31, 1964.....	351,653,375	112,064,577	239,618,798
TOTALS.....	1,526,809,631	1,253,743,699	273,065,932

¹ Includes principal amount of claims paid under government guarantee.

1.—Loans Made under the Farm Improvement Loans Act, by Purpose and Province, 1963 and 1964, with Cumulative Totals from 1945

Purpose and Province	1963		1964		Cumulative Totals 1945-64	
	Loans	Amount	Loans	Amount	Loans	Amount
	No.	\$	No.	\$	No.	\$
Purpose						
Purchase of agricultural implements...	56,028	99,178,510	58,302	109,899,350	947,679	1,239,843,565
Construction, repair or alterations of, or making additions to any building or structure on a farm.....	8,130	18,807,582	8,508	21,075,207	82,738	145,623,079
Purchase of livestock.....	8,835	13,132,153	9,005	14,278,399	88,717	103,457,084
Other improvements.....	4,380	4,836,319	4,817	5,583,373	44,966	37,885,903
Totals.....	77,373	135,954,564	80,632	150,836,329	1,164,100	1,526,809,631
Province						
Newfoundland.....	37	77,699	28	63,176	584	868,299
Prince Edward Island.....	962	1,348,515	1,023	1,467,714	17,159	18,490,651
Nova Scotia.....	578	864,685	662	1,011,684	12,251	13,462,547
New Brunswick.....	510	848,502	531	1,000,712	10,340	12,990,865
Quebec.....	2,871	5,598,713	2,725	5,839,964	110,493	147,634,024
Ontario.....	14,582	26,472,190	15,260	29,149,925	190,755	264,945,658
Manitoba.....	10,037	16,877,079	10,962	19,982,904	140,668	177,569,474
Saskatchewan.....	23,519	41,639,177	24,069	45,165,138	330,901	433,870,300
Alberta.....	22,085	37,763,054	23,012	42,187,529	317,325	410,009,135
British Columbia.....	2,192	4,464,950	2,360	4,967,583	33,624	46,968,678

Prairie Grain Advance Payments Act.—This Act, which came into force on Nov. 25, 1957, provides for an interest-free advance payment to producers for threshed grain (wheat, oats, and barley) in storage other than in an elevator and prior to delivery to the Canadian Wheat Board, exclusive of grain deliverable under a unit quota. Advance payments of 50 cents per bu. of wheat, 20 cents per bu. of oats and 35 cents per bu. of barley are made, subject to certain restrictions as to quota and acreage. Maximum advance payment per application is \$3,000. At July 31, 1965, the following advance payments had been made:—

<i>Period</i>	<i>Applications</i>	<i>Total Advance</i>	<i>Average Advance</i>
	No.	\$	\$
Aug. 1, 1957 — July 31, 1958.....	50,412	35,203,467	698
Aug. 1, 1958 — July 31, 1959.....	45,341	34,369,653	758
Aug. 1, 1959 — July 31, 1960.....	50,047	38,492,505	769
Aug. 1, 1960 — July 31, 1961.....	76,089	63,912,550	839
Aug. 1, 1961 — July 31, 1962.....	22,342	16,656,713	745
Aug. 1, 1962 — July 31, 1963.....	39,683	29,251,526	737
Aug. 1, 1963 — July 31, 1964.....	63,427	62,136,418	980
Aug. 1, 1964 — July 31, 1965.....	38,375	32,961,844	859

Repayment is effected by deducting 50 p.c. of the initial payment for all grain delivered subsequent to the loan, other than for grain delivered under a unit quota. The amounts deducted are paid to the Board until the producer has discharged his advance. At July 31, 1965, refunds had been made as follows:—

<i>Period</i>	<i>Total Refunded</i>	<i>Total Advance Outstanding</i>	<i>Percentage Refunded</i>
	\$	\$	
Aug. 1, 1957 — July 31, 1958.....	35,199,421	4,046	99.9
Aug. 1, 1958 — July 31, 1959.....	34,364,632	5,021	99.9
Aug. 1, 1959 — July 31, 1960.....	38,484,981	7,524	99.9
Aug. 1, 1960 — July 31, 1961.....	63,897,040	15,510	99.9
Aug. 1, 1961 — July 31, 1962.....	16,635,396	21,317	99.8
Aug. 1, 1962 — July 31, 1963.....	29,221,509	30,017	99.8
Aug. 1, 1963 — July 31, 1964.....	61,937,776	198,642	99.6
Aug. 1, 1964 — July 31, 1965.....	30,880,529	2,081,315	93.6

Farm Credit Act.—The Farm Credit Act (SC 1959, c. 43, proclaimed on Oct. 5, 1959) established the Farm Credit Corporation as successor to the Canadian Farm Loan Board established in 1929. The Corporation, which is a Crown agency, reports to Parliament through the Minister of Agriculture.

The Act provides two types of long-term mortgage loans for farmers. Under Part II of the Act the Corporation may lend up to 75 p.c. of the appraised value of the farm land and buildings taken as security, or \$40,000, whichever is the lesser. Under Part III the Corporation may lend 75 p.c. of the appraised value of the farm land and buildings and of the livestock and equipment taken as security, or \$55,000, whichever is the lesser. To qualify for a loan under Part III a farmer must be under 45 years of age and have had at least five years of farming experience. Part III loans are further secured by mandatory insurance on the life of the borrower, and his farming operations are subject to supervision by the Corporation until the loan is reduced to 75 p.c. of the appraised value of the farm land and buildings. Similar life insurance and supervision are available on an optional basis to borrowers under Part II.

The interest rate on the first \$20,000 borrowed under Part II or the first \$27,500 under Part III is set by statute at 5 p.c. On that part of the loan which exceeds these amounts the interest rate is set by the Corporation with the approval of the Governor in Council. This rate can vary according to the interest rate on money borrowed by the Corporation, the operating costs of the Corporation and the allowance made for reserves against capital losses. The interest rate on the amount of loan under Part II exceeding \$20,000 and the amount under Part III exceeding \$27,500 is, at present, 6½ p.c. All loans are repayable on an amortized basis within a period not exceeding 30 years.

The Corporation has 126 field offices administered by 191 credit advisers who are responsible for informing local farmers about the services available, for pre-loan counselling on credit use, farm planning and farm management, for accepting applications and for making farm appraisals.

Funds for lending are borrowed at current interest rates from the Minister of Finance. The aggregate amount of such borrowings outstanding at any time may not exceed 2 times the capital of the Corporation, which has been fixed by the Act at \$24,000,000.

In the year ended Mar. 31, 1965, the Farm Credit Corporation approved 10,142 loans for a total of \$154,813,900 as compared with 8,689 loans for a total of \$108,009,100 the preceding year; the total amount of principal outstanding on loans was \$443,560,275 as compared with \$341,169,139 the previous year.

2.—Loans Approved and Disbursed under the Canadian Farm Loan Act¹ and the Farm Credit Act, Years Ended Mar. 31, 1956-65

NOTE.—Figures for earlier years are given in the corresponding table of previous Year Books beginning with the 1940 edition.

Year Ended Mar. 31—	Loans Approved		Loans Paid Out	Year Ended Mar. 31—	Loans Approved		Loans Paid Out
	No.	\$	\$		No.	\$	\$
1956.....	2,057	8,309,650	8,254,322	1961.....	5,597	60,704,050	52,305,265
1957.....	2,921	13,978,700	13,183,992	1962.....	5,885	68,574,850	68,886,875
1958.....	3,702	21,278,450	19,343,560	1963.....	7,438	90,924,300	78,428,094
1959.....	4,805	30,144,950	28,368,265	1964.....	8,689	108,009,100	98,315,635
1960.....	5,339	40,031,250	35,840,882	1965.....	10,142	154,813,900	139,750,639

¹ Repealed by the Farm Credit Act, proclaimed Oct. 5, 1959.

3.—Loans Approved under the Farm Credit Act, by Province, Years Ended Mar. 31, 1963-65

NOTE.—Figures for earlier years are given in the corresponding table of previous Year Books beginning with the 1940 edition.

Province	1963		1964		1965	
	No.	\$	No.	\$	No.	\$
Newfoundland.....	1	20,000	5	68,600	3	55,700
Prince Edward Island.....	122	929,300	155	1,245,700	124	991,700
Nova Scotia.....	60	692,200	74	821,800	77	964,100
New Brunswick.....	101	1,192,500	83	945,200	72	821,300
Quebec.....	804	11,434,700	1,221	14,710,400	1,354	20,326,500
Ontario.....	1,526	20,144,700	1,796	24,766,000	2,131	34,461,200
Manitoba.....	479	5,390,500	625	7,460,800	691	9,176,200
Saskatchewan.....	2,307	23,271,700	2,332	25,200,900	2,601	35,570,100
Alberta.....	1,722	22,834,200	2,043	27,157,600	2,602	42,512,300
British Columbia.....	316	5,014,500	355	5,632,100	487	9,934,800
Totals.....	7,438	90,924,300	8,689	108,009,100	10,142	154,813,900

Farm Machinery Syndicates Credit Act.—The Farm Machinery Syndicates Credit Act (1964, c.29, proclaimed on Dec. 11, 1964) provides the Farm Credit Corporation with authority to make loans to qualified groups of farmers (referred to as syndicates) to purchase farm machinery to be used co-operatively and primarily on the syndicate members' farms. Under this Act the Corporation may lend a syndicate up to 80 p.c. of the cost of the machinery to be purchased but loans outstanding to any syndicate may not exceed \$15,000 per member or \$100,000. Funds are advanced to the Corporation by the Minister of Finance for the purpose of making loans under this Act.

To qualify for a loan a syndicate must have three or more members, all of whom are farming and the majority of whom have farming as their principal occupation. Loans are repayable over a term not exceeding seven years. Security is provided by a promissory note signed by each syndicate member and such other security as the Corporation may require.

The interest rate, set by the Corporation with the approval of the Governor in Council, is based on the cost of funds to the Corporation, the expenses in servicing loans and an allowance for a reasonable reserve against losses. The rate was set at 6 p.c. in December 1964. There is an initial service charge of 1 p.c. on the amount of each loan. The Corporation's field staff provide assistance to groups of farmers in making their local arrangements with respect to sharing in the use of the machinery and repayment of the loan.

At Mar. 31, 1965, loans had been approved for 22 syndicates with 81 members. The total amount approved was \$215,404.

Prairie Farm Assistance Act.—The Prairie Farm Assistance Act, passed in 1939, provides for direct money payments by the Federal Government on an acreage-and-yield basis to farmers in areas of low crop yield in the Prairie Provinces and in the Peace River area of British Columbia. Its purpose is to assist in dealing with a relief problem which the provinces and municipalities cannot do alone and to enable the farmers to put in a crop the following year. Payments for the 1964-65 crop year, as at July 31, 1965, totalled \$12,924,342; payments made under the Act since 1939 amounted to \$353,016,572.

Payments are made from the Prairie Farm Emergency Fund to which farmers contribute 1 p.c. of the value of all sales of wheat, oats, barley, rye, flaxseed and rapeseed. The additional funds required are provided from the federal treasury. The total collected through the 1-p.c. levy in the 1964-65 crop year, as at July 31, 1965, was \$9,189,011; the amount collected since 1939 was \$162,632,434.

Farmers operating land in the spring wheat area, and not covered by a federal-provincial crop insurance scheme, are eligible for awards. Crop failure and natural causes preventing seeding and summer fallowing are taken into account in making awards. These may not exceed \$800 in respect of any one farmer's total cultivated acreage.

Feed Grain Assistance.—The activities of the Feed Grain Administration of the Department of Forestry include the administration of a program respecting freight and storage assistance on western Canadian feed grains used for feeding livestock in Eastern Canada and British Columbia. Under authority of the Feed Grain Assistance Regulations of the Appropriations Act, the original policy was initiated in October 1941 to enable eastern Canadian feeders of livestock and poultry to obtain western-grown feed grains at reduced cost so that livestock and poultry production could be maintained at a high level. This program has been amended over the years but particularly in the past two years with the introduction of a storage assistance program on winter supplies in Eastern Canada, freight assistance on truck movements of grain and feeds in Eastern Canada, and the introduction of a zone system of payment. Order in Council P.C. 1963, effective June 21, 1965, calls for payment of storage charges on winter storage vessels at eastern ports in the amount of three cents per bushel.

During the year ended Mar. 31, 1965, \$18,246,389 was spent on the freight assistance program to move 2,298,051 tons of feed grains and millfeeds into Eastern Canada and British Columbia, and \$1,033,201 was spent in the payment of storage charges on western feed grains in store in Eastern Canada. Freight-assisted shipments, by province of destination, during the year ended Mar. 31, 1965 were:—

<i>Destination</i>	<i>Wheat</i>	<i>Oats</i>	<i>Barley</i>	<i>Screenings</i>	<i>Millfeeds</i>	<i>Total</i>	<i>Expenditure</i>
	tons	tons	tons	tons	tons	tons	\$
Newfoundland.....	6,450	5,866	4,720	4,023	6,075	27,134	718,541
Prince Edward Island.....	4,365	3,737	8,819	1,913	9,240	28,074	409,309
Nova Scotia.....	38,335	23,256	29,614	13,474	32,539	137,218	1,854,989
New Brunswick.....	12,910	15,259	17,230	7,206	28,794	81,399	1,117,569
Quebec.....	152,787	273,528	337,740	38,614	254,474	1,058,081 ¹	8,458,673
Ontario.....	84,035	203,382	254,245	61,998	151,171	754,871 ²	3,870,621
British Columbia.....	49,441	44,155	76,744	5,138	35,442	211,274 ³	1,816,687
TOTALS, 1964-65.....	348,323	569,183	729,112	132,366	517,735	2,298,051 ⁴	18,246,389
1963-64.....	448,663	576,395	740,878	92,260	540,163	2,400,526 ⁵	18,403,630

¹ Includes 938 tons of rye destined for Quebec.
includes 354 tons of corn destined for British Columbia.
of rye and 860 tons of corn.

² Includes 40 tons of rye destined for Ontario.

⁴ See footnotes ¹, ² and ³.

³ Includes 1,307 tons

Section 2.—Provincial Governments in Relation to Agriculture*

Subsection 1.—Agricultural Services

Newfoundland.—Government agricultural services in Newfoundland are operated by the Agricultural Division of the Department of Mines, Agriculture and Resources. The Division is in charge of a director who is assisted by a staff of 49 officers. For purposes of administration, the province is divided into nine districts. A fieldman with permanent headquarters is located in each district except Labrador, where the officer is resident for the summer only. Officers in charge of different phases of agricultural development visit each district on assignments from the St. John's office.

Departmental policies in support of the agricultural industry include: a bonus of \$125 an acre on land cleared by privately owned equipment; the distribution of ground limestone at a subsidized rate; the payment of bonuses on purebred sires; and financial assistance to agricultural societies, marketing organizations and exhibition committees. An inspection service is provided for poultry products, vegetables and blueberries, production of the latter being encouraged by the burning of suitable berry areas and the improvement of roads and trails leading to them.

Every encouragement is given to the production of livestock. Poultry and beef production have increased with favourable marketing conditions and with departmental assistance and loans under the Provincial Farm Development Loan Act. A veterinarian supervises the health of animals program and the joint federal-provincial project for the eradication of bovine tuberculosis.

The Agricultural Division co-operates with the Department of Education in furthering the 4-H Club movement in the province and accepts responsibility for all projects pertaining to agriculture.

Prince Edward Island.—The activities of the provincial Department of Agriculture are suggested by its staff which includes, in addition to the Minister and Deputy Minister, a dairy superintendent, three check testers, three dairy herd improvement promoters, a director of veterinary services and ten subsidized practising veterinarians, a livestock director, a marketing director, a horticulturist, a soil analysis assistant, a poultry fieldman, an economist, an agronomist, a director of 4-H Clubs, three agricultural representatives, a nursery supervisor, and a director, an assistant director and two extension workers of Women's Institutes.

Nova Scotia.—The Department of Agriculture and Marketing endeavours to "help the people to help themselves" through strengthening member interest in such organizations as the Nova Scotia Federation of Agriculture, the Nova Scotia Fruit Growers' Association, various agricultural co-operative organizations, credit unions and producer and marketing organizations. The Department is assisted by the Nova Scotia Advisory Committee on Agricultural Services which has been established to promote agricultural policies and projects of the federal and provincial Departments of Agriculture. The Committee meets quarterly to determine how the work of these Departments may be co-ordinated and directed through integrated agricultural policies and with minimum duplication of services.

New Brunswick.—Provincial government agricultural policy and programs in New Brunswick are directed by the Department of Agriculture. The Department is headed by the Minister of Agriculture who is assisted by the Deputy Minister and the Directors of the following Branches: extension, livestock and dairy, veterinary, poultry, horticulture, field husbandry, potato and plant protection, agricultural engineering, home economics, credit union and co-operative, and agricultural education.

* Information supplied by the agricultural authorities of the various provinces.

Quebec.—The agricultural policy of Quebec is formed around the premise that the family farm remains the ideal basis of the rural social structure. To serve the interests of agriculture, the provincial government, aided by various co-operative and professional associations, is working toward the improvement of agricultural production and marketing through the provision of farm credit, assistance to the farmer in organizing the collective commercialization of his products, the improvement of education and teaching facilities for farmers, and the encouragement of agricultural research. In addition, aid is provided in the form of subsidies to the settler and farmer in handicapped rural areas for the construction of buildings, the acquiring of stock, land clearing and development, and the transportation of produce to market. Under the federal-provincial ARDA program, plans are under consideration for the better utilization of farm lands and, generally, the rational development of rural areas.

These services are administered through the Department of Agriculture and Colonization which operates under authority of a Minister, two Deputy Ministers and an Advisory Board, and comprises three Directorates and ten Services, the several divisions and branches of which deal with specific problems. Each Service is headed by a director general.

The *Production and Marketing Service* gives guidance to farmers in the best methods of producing and marketing dairy, animal, horticultural and forestry products and administers the co-operative movement. Co-operative associations for the purchasing of farm supplies and the marketing of farm products are particularly prevalent in the Province of Quebec.

The *Research, Education and Information Service* administers the Agricultural Research Council which was founded in 1947 to direct, co-ordinate and stimulate research work in agriculture; the results of such research are published in the annual review *Recherches Agronomiques*. This Service is also concerned with the dissemination of scientific information to farmers and the general public through the press, radio and publications; animal hygiene; veterinary education (the School of Veterinary Medicine at St. Hyacinthe); and agricultural education (Institutes of Agricultural Technology at St. Hyacinthe and Ste. Anne de la Pocatière and fifteen intermediate schools). Information intended to improve family life in general by the cultural enrichment of the farm woman is given through direct teaching, by means of the review *Terre et Foyer*, through local exhibitions and the Provincial Exhibition of Farm Women's Clubs.

The *Rural Planning Service*, through its four sections—economy, planning, development and utilization of land—is mainly concerned with the implementation of joint federal-provincial programs being conducted under the federal Agricultural Rehabilitation and Development Act (ARDA). The *Colonization Service* is occupied with the establishment of settlers, concessions of land and clearing of land. The *Farm Planning and Extension Service* is involved in the solving of problems of management and the promotion of agriculture at regional and county levels. Twenty-seven local offices co-ordinate the work of agronomists and specialists. Five-year agricultural contests are held in which the farmers of a parish or county take part, and an annual competition for the Agricultural Order of Merit brings into the limelight the most deserving farmers in each of the five regions into which the province is divided. The work of the *Rural Engineering Service* falls into three categories—colonization roads, mechanized work and drainage work. The *Administration Service* deals with personnel, records and the purchasing and maintenance of materials and tools.

Also under the jurisdiction of the Department are the Farm Credit Bureau, the Quebec Sugar Refining Corporation (St. Hilaire) and the Agricultural Marketing Board.

Ontario.—The Ontario Department of Agriculture provides financial assistance and administrative services through its Head Office, 14 branches and one Demonstration Farm, and through research conducted under the direction of the Ontario Research Institute as well as that under way at the Ontario Agricultural College, the Ontario Veterinary College, Macdonald Institute, Western Ontario Agricultural School, Kemptville Agricultural School and the Horticultural Experiment Station.

The administration of the Department is under the supervision of the Deputy Minister with the assistance of two Assistant Deputy Ministers. The Ontario Agricultural College, the Ontario Veterinary College and Macdonald Institute now form part of the University of Guelph. The Research Institute is the responsibility of the Director of Research who, in turn, reports to the Deputy Minister. During 1962 an office was established to develop programs under the Agricultural Rehabilitation and Development Act of Canada.

The services of the Co-operatives Branch are designed to encourage and assist co-operatives to operate sound and successful businesses under the control of their members; it also administers the Co-operatives Loans Act. The Dairy Branch provides an inspection, instruction and supervision service to all dairy factories and promotes the production of clean milk on farms. The Milk Industry Board of Ontario, functioning under the authority of the Milk Industry Act, regulates and supervises the marketing of milk and cream. During 1963, a new approach to marketing and merchandising agricultural food products was initiated by the formation of the Ontario Producers, Processors, and Consumers Food Council. All segments co-ordinated their efforts toward the solving of current problems and the recommending of long-range policies. The Food Council operates as a separate branch and is also responsible for the market development program of the Department in an effort to increase markets at home and abroad. A Marketing Development Specialist is located in the Department of Economics and Development to co-ordinate development programs concerning agricultural food products.

Through a staff of agricultural representatives, one of whom is located in each county and district, the Extension Branch carries on an educational and extension service, and gives leadership to 4-H Club work and to the Ontario Junior Farmers' Association. It also provides assistance to farmers and settlers in northern Ontario in connection with land clearing and breaking and improvement of farms and livestock. The Home Economics Service, which is part of the Extension Branch, gives leadership to organized activities of rural women. The Live Stock Branch promotes livestock improvement policies and gives support to purebred livestock associations. The Veterinary Services Branch (created in 1964) administers the Community Sales Act, the Dead Animal Disposal Act, meat and livestock inspection and disease control, and provides diagnostic and extension services formerly under the Live Stock Branch.

The Farm Economics and Statistics Branch carries on research in farm business including cost analysis, marketing and land use; in co-operation with the Dominion Bureau of Statistics it gathers and publishes statistics of agricultural production. The Agricultural and Horticultural Societies Branch provides assistance to agricultural and horticultural fairs and exhibitions, ploughing matches and other competitions and administers the Community Centres Act. A Demonstration Farm in northern Ontario at New Liskeard is operated for the demonstration of methods adaptable to the area concerned, present emphasis being on beef cattle production. The Soils and Crops Branch assists in the development of good cultural practices, promotes the use of improved strains of seed and works for the improvement of pastures; it also administers the Weed Control Act.

The Research Institute co-ordinates all research activities of the province's agricultural schools and colleges in addition to developing a thorough research program in the interests of agriculture and industry associated with agriculture.

Manitoba.—The Department of Agriculture and Conservation serves Manitoba through the following branches.

The Extension Service deals with agricultural engineering, entomology and bee-keeping, radio, TV and information, 4-H Clubs and women's work, and has specialists devoting attention to these subjects. Meetings, field days, and short courses are held. Thirty-seven agricultural representatives and six assistants are located in 35 offices in the province, each serving from one to five municipalities; 14 home economists serve designated areas.

The Animal Industry Branch develops and administers policies that encourage the improvement and efficient production of different classes of livestock, including poultry; supervises the grading of cream and inspects dairy manufacturing plants. Several Acts to promote high-quality products for consumer protection are administered in close co-operation with federal departments.

The Soils and Crops Branch encourages the development, production and improvement of cereal, forage, special crops and horticulture and promotes proper land use through soil conservation programs. The Branch develops and administers policies that encourage good field crop husbandry, soil conservation and weed control.

The Economics and Publications Branch deals with agricultural economics, supervises the farm business clubs and publishes and distributes annually approximately 250,000 bulletins, circulars, posters, leaflets, etc. The Publications section publishes agricultural statistics and maintains an agriculture reference library.

The Co-operative Services Branch registers and supervises co-operatives and credit unions and administers the Acts governing them. It also collects and compiles statistics on co-operative activity throughout the province.

The Veterinary Services Branch provides a diagnostic laboratory for animal diseases; administers the brucellosis control program, the Veterinary Services District Act and the Veterinary Science Scholarship Fund Act; works in close co-operation with practising veterinarians and the federal Health of Animals Branch in the control of livestock and poultry diseases.

The Water Control and Conservation Branch administers, through the Water Rights and the Water Power Acts, the water resources of the province and all works in connection with the control and utilization of those resources. The Departmental Act and associated statutes provide for the construction of works to control and use water, and for technical and financial assistance to local governments for the construction, maintenance and operation of such works. The Floodway Division is responsible for co-ordinating all matters in respect to design and construction of the Red River Floodway.

Saskatchewan.—The Saskatchewan Department of Agriculture is organized in the following branches and services.

The Agricultural Representative Branch has a technical staff of 55, which serves all branches of the Department as well as the other agencies operating within the Co-operative Agricultural Extension Program. Agricultural representatives are active in all federal, provincial and university farm services; they work through Agricultural Conservation and Improvement Committees in each rural municipality and local improvement district to supply the farmer with scientific and practical information and to develop district improvement programs. The Department pays one half the cost of local group development projects. In farm labour matters, co-operation is maintained with the federal Department of Labour, including the National Employment Service.

Animal Industry Branch specialists provide technical information to livestock producers and administer the record of performance program for beef cattle. The Dairy Division of the Branch administers dairy herd improvement programs, assists producers with management and production problems, inspects and licenses dairy manufacturing and frozen-food locker plants, and administers dairy, locker plant and margarine legislation; the Livestock Division encourages the use of suitable animals for breeding purposes by the establishment of purebred sire areas and by assistance in the purchase and distribution of bulls, boars and rams, and registers brands, licenses livestock dealers and agents and promotes programs on insect control, feeding and management; the Poultry Division maintains poultry testing and banding services, licenses produce dealers and buyers, hatcheries and hatchery agents, and otherwise promotes flock improvement; the Veterinary Division assists students in veterinary science under a scholarship plan, administers the

Veterinary Service District Act and the calfhood vaccination program, provides a laboratory service for the livestock and poultry industries and co-operates with Federal Government officials and local veterinarians in disease prevention and control.

The Conservation and Development Branch provides engineering services for irrigation development, usually in co-operation with the Federal Government, and for drainage programs and water utilization and control projects. Land reclamation and development, and construction of provincial community pastures also come within its jurisdiction.

The Lands Branch administers Crown land, except forest reserves and parks in settled areas; classifies it according to the use for which it is best suited; disposes of such land under long-term leases; secures land control for land utilization projects; supervises new settlement projects; pays for clearing and breaking by farmers on provincial leases; and operates provincial community pastures.

The Plant Industry Branch conducts grassland improvement programs and programs for crop improvement and protection, and gives advice on soil conservation, horticultural problems, and weed and pest control. The Seed Plant Division carries on custom cleaning of forage seeds and registered cereals. The Apiary Division advises on beekeeping and honey production and conducts continuous inspection.

Farmers are assisted by the Family Farm Improvement Branch which gives technical advice at the farm on the construction of farm buildings and on farmstead planning, mechanization and materials handling. The Branch conducts research for farm water and sewage works.

The Economics and Statistics Branch undertakes research and investigations required to formulate and evaluate policies and programs that will ensure a high level of growth and efficiency in Saskatchewan's agriculture; it collects, analyses and distributes economic information and principles to assist people interested in or engaged in agricultural pursuits. Data on crop conditions, production, marketings and income are available from the Statistics Division.

Farm information is dispensed daily over private radio stations, over TV stations and to the press by the Information Division.

Alberta.—The Alberta Department of Agriculture is organized in the following branches and services.

The Field Crops Branch administers programs and policies relating to crops and soils. A supervisor is in charge of each division, namely, crop improvement, crop protection and pest control, weeds and soils, horticulture, apiculture, and special projects. A crop diagnostic service is offered through the Crop Clinic at Edmonton. The Horticultural Station at Brooks and the Tree Nursery at Oliver offer services in horticulture and provide trees for farm planting.

The Livestock Branch administers policies to aid in general livestock improvement and sire distribution. This includes setting standards for and approving public sales of sires, record-of-performance programs for beef cattle, sheep and swine and extension and control of artificial insemination. The Branch also administers supervision of Feeder Associations; brand registration; brand inspection; licensing of butchers, livestock dealers and stockyards; pound districts and sale of horned cattle.

The Dairy Branch administers the Dairymen's Act, the Frozen Food Act and the Margarine Act. The testing, grading and purchasing of raw produce by all dairy plants are under regulation, as are standards of construction, manufacture, processing, sanitation, and temperature control for dairy and frozen-food plants. A regular cow-testing service to provide the basis for breeding, feeding and culling dairy cattle is available to dairy producers and the Branch laboratory conducts chemical and bacteriological analyses needed for industrial directives.

The Poultry Branch carries on programs for the improvement of poultry husbandry and supervises flock approval for the control of pullorum disease. The Branch issues hatchery, wholesale, first receiver and trucker licences for the handling of poultry products.

The Veterinary Services Branch provides diagnoses of livestock and poultry diseases through its laboratory; conducts investigations of disease conditions; lectures in veterinary science at the University of Alberta and at many meetings; and promotes government policies aimed at reducing losses throughout the province such as brucellosis control, stockyard inspection, swine health program, mastitis, etc.

The Agricultural Extension Service operates 47 offices and employs the services of 62 district agriculturists and 21 district home economists. The district agriculturists and district home economists supply information and provide guidance to farm families with respect to agriculture and homemaking; they also promote progressive agricultural or homemaking policies and programs. 4-H Clubs are administered by this Branch. The Branch is divided in the following main divisions: district agriculturists; district home economists; 4-H Clubs; agricultural engineering; radio and information; and publications and visual aids.

The Fur Farms Branch administers the licensing and exporting of live animals and pelts, and assists fur farmers in care, management and stock improvement; the Radio and Information Branch conducts five broadcasts a week over ten radio stations and issues weekly bulletins to press and radio; the Water Resources Branch deals with water rights, drainage, irrigation and water power development; the Lands and Forests Utilization Committee (composed of representatives from the Department of Lands and Forests, Power Commission, Department of Municipal Affairs, University of Alberta and Department of Agriculture) deals with the proper use of submarginal agricultural land; the Alberta ARDA Program is conducted by the ARDA Co-ordinator in co-operation with the Land Utilization Committee; and the Farm Economics Branch studies various economic farm problems and advises farmers on management and marketing.

Credit is made available to farmers for the purchase of land under the Farm Purchase Credit Act, and for home improvements under the Farm Home Improvement Act. Agricultural and Vocational Colleges are operated at Olds, Fairview and Vermilion.

British Columbia.—The Department of Agriculture has four main branches. The Administrative Branch is responsible for the general direction of agricultural policies, the administration of legislation affecting agriculture and the compilation of reports and publications. This Branch also maintains direct supervision of the Field Crops, Soil Survey, Plant Pathology, Entomology, Apiary, Markets and Statistics, Farmers' Institutes and Women's Institutes Branches.

The Livestock Branch engages in the promotion and supervision of the livestock industry and provides veterinary services affecting disease control regulations; its work also includes supervision of stock brands, inspection of dairy and fur farm premises, and inspection of licensed abattoirs too small to qualify for federal inspection services. In addition, the Branch supervises the operations of the Dairy Branch in the inspection of commercial dairy premises, dairy farms and the laboratory testing of fluid milk. Officials are stationed at 11 centres throughout the province.

The Horticulture Branch supervises fruit, vegetable and seed production, and provides advice on plant diseases and insect pest control. The Branch maintains field offices at nine points in the southerly section of the province.

The Agricultural Development and Extension Branch offers general information services to farmers through 17 offices which cover all major farming districts. In addition, this Branch provides agricultural engineering service, supervision of the government land-clearing program and farm labour services, and promotes junior club projects. The Poultry Branch offers extension services to the poultry industry.

Subsection 2.—Agricultural Colleges and Schools

All provinces provide facilities or assistance for training in agricultural sciences, which may be at university or secondary school level or be given in special short-term or longer-term courses. A number of universities in the provinces of Central and Western Canada offer degree courses in agricultural, household and veterinary sciences and also provide opportunities for postgraduate study and research in the agricultural field. Most courses at the secondary level give practical training in modern farming methods and community leadership. The facilities available in each province are described in the 1963-64 Year Book, pp. 430-432.

Section 3.—Statistics of Agriculture*

The collection, compilation and publication of statistics relating to agriculture is a responsibility of the Dominion Bureau of Statistics. Valuable information is obtained through the Censuses of Canada and through partial-coverage surveys. Results of the 1961 Census are summarized in Section 4 of this Chapter and are available in greater detail in census publications issued by the Bureau.† A list of such publications is available on request.

The Bureau also collects and publishes primary and secondary statistics of agriculture on an annual and monthly basis. The primary statistics relate mainly to the reporting of crop conditions, crop and livestock estimates, wages of farm labour and prices received by farmers for their products. The secondary statistics relate to farm income and expenditure, per capita food consumption, marketing of grain and livestock, dairying, milling and sugar industries and cold storage holdings. In the collection of annual and monthly statistics, the Canada Department of Agriculture and various provincial departments, as well as such agencies as the Board of Grain Commissioners and the Canadian Wheat Board, co-operate with the Bureau. Many thousands of farmers throughout Canada send in reports voluntarily and dealers and processors also provide much valuable data. The figures contained in this Section do not include estimates for Newfoundland. Agriculture plays a relatively minor part in Newfoundland's economy, commercial production of most agricultural products being quite small. In the following Subsections, details are given for 1964; figures are subject to revision.

Agriculture in 1964 Related to Economic Activity.—The gross national product rose to \$47,000,000,000 in 1964 from \$43,000,000,000 a year earlier, recording a gain of over 9 p.c. which was the largest annual increase since 1956. As prices were only about 2.5 p.c. higher in the later year, much of the increase in the national product represented a rise in the volume of output. However, farm production as a whole did not contribute to this increase because of the decline in grain production in Western Canada. Although the grain crop in this area was large, it was considerably below the record harvest of 1963 with the result that over-all farm production was 7 p.c. below the record level of that year.

Cash receipts from the sale of farm products stood at a record level in 1964. This was the result largely of the very heavy marketings of the record 1963 wheat crop during the first half of 1964 to fulfil an unusually large export contract with the U.S.S.R. At the same time, the Canadian Wheat Board closed its accounts for the 1962 crops of wheat, oats and barley and paid out substantial amounts in the form of participation payments. Also, 1964 cash receipts from the sale of livestock and livestock products were slightly above those for 1963; prices were lower for these items but production was higher. Although farm operating expenses and depreciation charges continued to climb in 1964, they did not rise nearly as rapidly as cash receipts. Accrued net income of farm operators from farm production, which is a component of national income, was \$1,500,000,000, compared with \$1,700,000,000 in 1963.

* Revised in the Agriculture Division, Dominion Bureau of Statistics.

† Available from the Dominion Bureau of Statistics or the Queen's Printer, Ottawa.

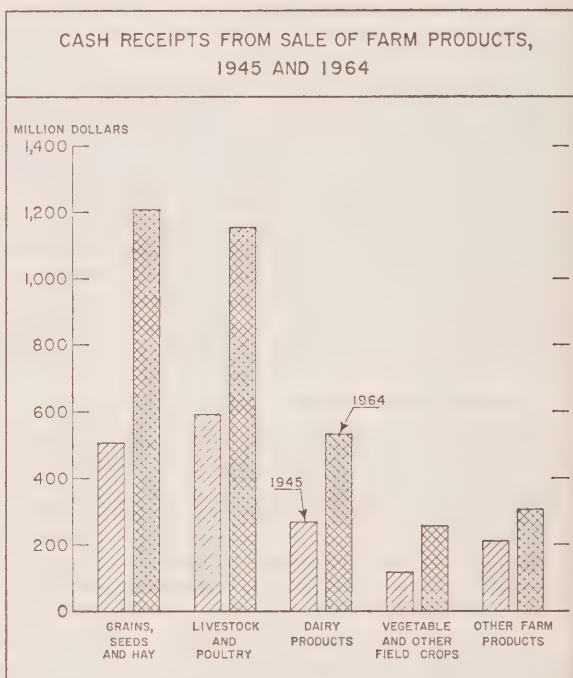
Subsection 1.—Cash Receipts* from Farming Operations, 1964

Estimates of cash receipts from farming operations include data concerning cash receipts from the sale of farm products, Canadian Wheat Board participation payments on previous years' grain crops, net cash advances on farm-stored grains in Western Canada, deficiency payments made by the Agricultural Stabilization Board, and supplementary payments. Farm cash receipts from the sale of farm products include the returns from all sales of agricultural products except those associated with direct inter-farm transfers. The prices used to value all products sold are prices to farmers at the farm level; they include any subsidies, bonuses and premiums that can be attributed to specific products, but do not include storage, transportation, processing and handling charges which are not actually received by farmers.

Cash receipts for 1964, excluding supplementary payments, were estimated at \$3,455,600,000 for Canada, excluding Newfoundland. This was a record high and exceeded by 8.5 p.c. the previous high of \$3,184,500,000 established in 1963. The increase was attributed for the most part to a substantial increase in farmers' marketings of wheat and to much larger participation payments made by the Canadian Wheat Board, although some contributions were made by oilseed crops, potatoes, barley, fruits, vegetables, cattle, hogs and dairy products. Partially offsetting these gains were lower total receipts from poultry products, tobacco and oats, and a substantial repayment of cash advances on farm-stored grains in Western Canada.

Farmers also received, under the provisions of the Prairie Farm Assistance Act,† supplementary payments amounting to \$8,500,000 as against \$14,800,000 during 1963. Altogether, farm cash receipts from farming operations and total supplementary payments amounted to \$3,464,100,000 for 1964, about 8.3 p.c. above the previous high of \$3,199,300,000 in 1963.

Field Crops.—It is estimated that during 1964 farmers realized \$1,569,800,000 from the sale of field crops, cash advances on farm-stored grains in Western Canada, and Canadian Wheat Board payments. This was nearly 20 p.c. more than the \$1,320,400,000 realized in the previous year, largely because of higher receipts from wheat marketings and



* Formerly "Cash Income".

† Payments to farmers under the provisions of the Prairie Farm Assistance Act are made from the Prairie Farm Emergency Fund, to which farmers contribute by means of a 1-p.c. levy on grain marketings.

Canadian Wheat Board participation payments. In total, income from field crops in 1964 accounted for approximately 45 p.c. of total cash receipts for the year, excluding supplementary payments, compared with about 40 p.c. in 1963.

Cash receipts to farmers from wheat at the time of delivery and before adjustment for cash advances totalled \$741,000,000, about 24 p.c. above 1963. For the most part, this gain arose out of unusually heavy marketings by farmers from the record 1963 crop to meet above-normal export demand. During 1964, the Canadian Wheat Board distributed to farmers a total of nearly \$225,000,000 in the form of participation payments compared with about \$124,000,000 in 1963. The 1964 payments represented a final payment of 42.5 cents per bu. on wheat delivered to the Board from the 1962 crop and also final payments of 12.4 cents and 18.2 cents per bu. paid, respectively, on deliveries from the 1962 crops of oats and barley. The payments made in 1963 were made up entirely of a final payment of 43.0 cents per bu. on deliveries from the 1961 wheat crop. These payments arise out of the system of grain marketings in Western Canada whereby farmers, at the time they deliver their grain, are given initial payments and certificates stating the quantities and grades delivered. These certificates entitle producers to share in surpluses accumulated by the Board through subsequent sales of these grains for domestic consumption or export. The share of the money accruing to farmers represents the Canadian Wheat Board payments included in these estimates of farm receipts.

Receipts from flaxseed, rapeseed and soybeans rose from a total of \$61,500,000 in 1963 to \$93,400,000 in 1964 largely as a result of increased marketings; rapeseed was the only oilseed for which there was any noticeable increase in price. Cash receipts from flaxseed were up from \$36,400,000 in 1963 to nearly \$60,000,000 in 1964, and returns to rapeseed growers increased from \$11,700,000 to about \$18,000,000. Initial delivery prices for barley remained unchanged but marketings increased to give total receipts from this crop of almost \$72,000,000 as against \$67,700,000 in 1963. Receipts from potatoes, at \$55,100,000 in 1964, were 31.4 p.c. above the 1963 level as a result of both larger marketings and higher prices, and fruits and vegetables rose to \$157,200,000 from \$146,300,000.

The most important offset to the above gains was caused by repayments of cash advances on farm-stored grains in Western Canada. Heavy marketings of grains during 1964 led to repayments that exceeded cash advances by \$12,100,000, leading to a net entry in farm cash receipts of minus \$12,100,000; this was in contrast to the previous year when advances exceeded repayments by \$11,200,000. Returns from tobacco amounted to \$96,700,000 compared with \$114,200,000 in 1963, most of the decline occurring in Ontario and resulting from lower prices and to the fact that a much larger proportion of the 1963 crop was sold during the year of production than was the case for the 1962 crop. Farmers' marketings of oats declined quite significantly in 1964. This, together with average prices approximately the same as in 1963, provided total cash receipts from this source of \$33,000,000 in 1964, 27.8 p.c. less than a year earlier.

Livestock and Livestock Products.—Total cash receipts to producers of livestock and livestock products, amounting to \$1,853,000,000 in 1964, were little different from those of 1963. Marketings of cattle, calves and hogs were above 1963 levels but prices averaged lower. Fewer sheep and lambs were marketed at prices not greatly different from those of 1963, resulting in slightly lower receipts from this source.

A record production more than offsetting slightly lower prices gave a total cash income of \$173,200,000 from the production of poultry meat as against \$168,900,000 in 1963. Egg production also increased quite substantially but the decline in prices was proportionally greater with the result that cash receipts decreased from \$148,400,000 in 1963 to \$132,600,000. A combination of higher prices and a slight increase in production provided total receipts from dairy products of approximately \$531,000,000 in 1964, about \$21,000,000 above the level of the previous year.

4.—Cash Receipts from the Sale of Farm Products, 1961-64

Item	1961	1962*	1963*	1964
	\$'000	\$'000	\$'000	\$'000
Grains, Seeds and Hay	794,765	916,566	960,591	1,208,148
Wheat.....	487,320	526,527	598,102	741,004
Wheat participation payments.....	122,330	152,623	123,968	199,744
Oats.....	23,900	33,531	45,745	33,011
Oats participation payments.....	8,928	4,301	—	10,673
Barley.....	63,813	52,385	67,744	71,972
Barley participation payments.....	2,022	24,244	—	14,092
Canadian Wheat Board net cash advance payments.....	-34,538	5,916	11,203	-12,123
Rye.....	4,946	8,647	7,763	8,059
Flaxseed.....	49,770	47,617	36,367	59,754
Rapeseed.....	17,047	10,127	11,715	17,957
Soybeans.....	12,649	14,906	13,463	15,709
Corn.....	21,866	24,331	29,004	35,873
Clover and grass seed.....	11,541	10,367	15,056	11,970
Hay and clover.....	3,171	1,144	461	453
Vegetables and Other Field Crops	227,380	227,356	262,178	257,764
Potatoes.....	38,101	37,025	41,945	55,114
Vegetables.....	74,002	80,016	79,891	86,036
Sugar beets.....	12,525	13,706	26,138	19,891
Tobacco.....	102,752	96,509	114,204	96,723
Livestock and Poultry	1,102,423	1,174,355	1,134,873	1,153,605
Cattle and calves.....	628,842	680,055	638,122	645,487
Sheep and lambs.....	11,678	10,681	9,715	9,437
Hogs.....	317,745	330,301	318,174	325,526
Poultry.....	144,158	153,318	168,862	173,155
Dairy Products	533,978	499,576	509,812	530,983
Fruits	53,722	58,355	66,431	71,131
Other Principal Farm Products	157,634	156,995	166,203	147,028
Eggs.....	141,970	141,601	148,381	132,566
Wool.....	3,003	2,784	2,652	2,520
Honey.....	5,605	5,204	7,444	6,855
Maple products.....	7,056	7,406	7,726	5,087
Miscellaneous Farm Products	35,954	34,655	35,029	37,236
Forest Products	27,841	26,580	26,475	26,820
Fur Farming	18,117	19,351	21,623	22,000
Deficiency Payments—				
Eggs.....	15	577	59	867
Sugar beets.....	—	733	1,251	—
Potatoes.....	33	957	1	—
Totals, Cash Receipts from Farm Products	2,951,862	3,115,956	3,184,526	3,455,582
Supplementary Payments.....	35,766	70,313	14,769	8,477
Totals, Cash Receipts	2,987,628	3,186,269	3,199,295	3,464,059

5.—Cash Receipts from the Sale of Farm Products, by Province, 1961-64

Province	1961	1962*	1963*	1964
	\$'000	\$'000	\$'000	\$'000
Prince Edward Island.....	23,913	24,929	25,764	32,723
Nova Scotia.....	46,498	46,028	46,251	43,910
New Brunswick.....	42,311	42,477	42,754	49,070
Quebec.....	437,309	449,632	459,515	456,635
Ontario.....	890,880	925,810	986,370	996,596
Manitoba.....	242,678	248,111	264,784	293,956
Saskatchewan.....	600,964	675,848	690,835	836,711
Alberta.....	531,510	552,624	519,642	596,058
British Columbia.....	136,799	150,497	148,611	149,923
Totals	2,951,862	3,115,956	3,184,526	3,455,582

Net Income of Farm Operators from Farming Operations.—Two different estimates of net income from farming operations are prepared by the Agriculture Division. One is called *realized net income* and is obtained by adding together cash income from farming operations, supplementary payments and the value of income in kind, and deducting farm operating expenses and depreciation charges. This estimate of farm net income represents the amount of income from farming that operators have left for family living or investment after provision has been made for operating expenses and depreciation charges. The second estimate is referred to as *total net income* and is obtained by adjusting realized net income to take into account changes occurring in inventories of livestock and stocks of grains on farms between the beginning and the end of the year. The latter estimate is the one used to calculate the contribution of agriculture to national income.*

For 1964, *realized* farm net income was estimated at \$1,526,100,000, an amount about 13 p.c. above the 1963 estimate of \$1,346,300,000 and 14 p.c. higher than the average of \$1,339,200,000 for the five-year period 1959-63. Compared with 1963, farm operating expenses and depreciation charges were up more than 4 p.c. and supplementary payments declined, but farm cash receipts from farming operations set a new record high and the value of income in kind increased.

Total net income amounted to \$1,432,000,000 in 1964, nearly 14 p.c. below the 1963 level of \$1,654,800,000, but about 4 p.c. above the average of \$1,379,400,000 for the 1959-63 period. Farm inventories of grains in the Prairie Provinces declined quite substantially between the beginning and the end of the year as a result of a lower level of grain production in 1964 than in 1963; this, together with the increase in farm operating expenses and depreciation charges, more than offset the record high cash receipts to give a total net income for 1964 below that of a year earlier.

Farm cash receipts, the most important component of farm net income, and supplementary payments are discussed on p. 474. Income in kind, which includes the value of farm consumption of home-grown foodstuffs, wool and forest products plus an imputed rental value of farm dwellings, was estimated at \$367,800,000 for 1964 as against \$354,900,000 in 1963. This gain can be attributed entirely to an increase in the value of consumption of fruits and vegetables and a higher imputed rental value for the farm home.

The value of inventory change is obtained by calculating the change in the quantity of grain and the number of livestock on farms between the beginning and the end of the year and valuing the difference at average annual prices. The value of inventory change at the end of 1964 was minus \$94,000,000 as against \$308,400,000 for 1963, reflecting a substantial reduction in farm-held stocks of grain arising out of the smaller crops in 1964 compared with 1963, partially offset by a build-up in the numbers of livestock and poultry.

Operating expenses† and depreciation charges include farm business costs incurred by farmers regardless of whether they are paid for in cash or accumulated as new debt. As far as possible they exclude outlays for goods and services obtained directly from other farmers. All subsidy payments are taken into account so that the estimates represent only the net amounts paid by farmers. The total of these expenses and depreciation charges reached a new high of \$2,305,800,000 in 1964, more than 4 p.c. above the 1963 estimate of \$2,207,900,000. With the exception of gross rent, all items of farm costs in 1964 were above the level of the previous year. In the case of rent, farmers' outlays were reduced quite substantially as a result of smaller crops and the consequent reduction in share-rental payments. For the second consecutive year, expenditure on fertilizer and lime showed the greatest increase both on a percentage basis and in absolute terms; costs to farmers rose from \$105,000,000 in 1963 to \$126,400,000 in 1964 as a result of higher prices and a substantial increase in the quantities used. Although the hired labour force in agriculture

* Information on the methods and concepts used to determine the contribution of agriculture to national income is available in DBS publication *Handbook of Agricultural Statistics*, Part II.

† Certain expense estimates used here do not agree with those published by the 1961 Census of Agriculture; revisions based on the Census and those arising out of the 1958 Survey of Farm Expenditure were not completed at the time of preparation of this material.

tended to be slightly smaller in 1964 than in 1963, total expenditures for hired help continued to rise as wages climbed. Higher total interest payments occurred as a result of the use of increasing amounts of credit by the agricultural industry. Larger outlays for feed stemmed from greater consumption. Higher total costs for the operation of farm machinery reflected slightly higher prices for petroleum products and greater outlays for repair parts. Farmers continued to buy substantial amounts of new farm machinery, indicated by the continuing rise in the allowance for depreciation.

6.—Net Income of Farm Operators from Farming Operations, 1961-64

(Exclusive of Newfoundland)

NOTE.—Includes estimated rental value of farm homes, supplementary payments made under the provisions of the Prairie Farm Assistance Act and payments under the Western Grain Producers' Acreage Payment Regulations.

Item	1961	1962*	1963*	1964
	\$'000	\$'000	\$'000	\$'000
1. Cash receipts from farming operations.....	2,951,862	3,115,956	3,184,526	3,455,582
2. Income in kind.....	339,793	343,952	354,917	367,844
3. Supplementary payments.....	35,766	70,313	14,769	8,477
4. Realized gross income (Items 1+2+3).....	3,327,421	3,530,221	3,554,212	3,831,903
5. Operating and depreciation charges.....	1,979,757	2,090,172	2,207,865	2,305,847
6. Realized net income (Items 4-5).....	1,347,664	1,440,049	1,346,347	1,526,056
7. Value of inventory changes.....	-272,992	187,686	308,406	-94,037
8. Total gross income (Items 4+7).....	3,054,429	3,717,907	3,862,618	3,737,866
Totals, Net Income (Items 8-5).....	1,074,672	1,627,735	1,654,753	1,432,019

7.—Net Income of Farm Operators from Farming Operations, by Province, 1961-64

NOTE.—Includes estimated rental value of farm homes, supplementary payments made under the provisions of the Prairie Farm Assistance Act and payments under the Western Grain Producers' Acreage Payment Regulations.

Province	1961	1962*	1963*	1964
	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	—	—	—	—
Prince Edward Island.....	6,808	6,808	6,981	13,409
Nova Scotia.....	14,819	12,246	11,533	8,050
New Brunswick.....	11,910	10,686	9,681	15,177
Quebec.....	190,985	185,041	171,921	154,521
Ontario.....	355,946	368,453	369,307	345,280
Manitoba.....	62,204	170,465	115,472	161,423
Saskatchewan.....	132,935	490,659	577,578	378,031
Alberta.....	240,064	312,938	322,847	286,804
British Columbia.....	61,001	70,439	69,433	69,324
Totals.....	1,074,672	1,627,735	1,654,753	1,432,019

Subsection 2.—Volume of Agricultural Production

The index of physical volume of agricultural production for Canada was estimated at 151.5 for 1964 (1949=100). Although 7 p.c. below the high of 162.9 established in 1963, it was the second highest production estimate on record. The decline was entirely accounted for by the reduction in grain production, particularly in Saskatchewan and Alberta. For the remaining commodities considered in the index, production for all of Canada was above the level of the previous year.

On a provincial basis, the greatest decline in the index occurred in Saskatchewan where much of the end product of farm production is represented by crops. Smaller crops were also reflected in the decline in the index for Alberta, but the effect was much less than in Saskatchewan because of the relatively greater importance of livestock and livestock products. Nova Scotia and Quebec were the only other provinces where the index of production was below the 1963 level. Nova Scotia's lower total production was largely attributable to a decrease in the output of dairy products and eggs, and smaller production of dairy products and hogs accounted for much of the decline in the index for Quebec.

The index has been designated as an index of unduplicated gross farm production and, in its construction, provision has been made to avoid double counting of farm output. Within a province, such double counting occurs when feed grains, credited to field crop production, are fed to livestock, and appear later as livestock and livestock products. Interprovincially, this duplication occurs when feed grains produced in one province are fed in another, and when feeder cattle raised in one section of the country are shipped to another for finishing.

8.—Index Numbers of Physical Volume of Agricultural Production, by Province, 1955-64 (1949=100. Exclusive of Newfoundland)

NOTE.—For a description of the index, methods and coverage, see DBS publication *Index of Farm Production 1962* (Catalogue No. 21-203).

Year	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total
1955.....	100.3	114.4	97.4	124.6	108.3	103.6	164.0	146.7	106.5	127.7
1956.....	101.2	115.5	103.2	127.2	113.9	132.2	184.1	165.3	113.7	140.3
1957.....	107.9	113.9	98.1	128.0	118.9	106.8	119.7	133.3	118.9	120.8
1958.....	106.2	110.8	94.5	133.8	132.4	127.1	117.8	150.0	123.2	129.9
1959.....	97.7	116.7	91.8	134.3	125.3	122.8	124.9	153.7	128.8	129.8
1960.....	98.5	117.0	96.8	134.5	128.7	126.2	162.3	150.4	131.8	138.7
1961.....	99.0	123.2	99.4	144.9	137.6	88.2	79.5	149.5	144.4	122.0
1962 ^a	99.7	124.5	94.5	151.8	142.1	149.6	166.1	160.3	152.3	150.9
1963 ^a	97.8	127.6	95.2	150.4	141.0	128.4	219.4	181.9	150.4	162.9
1964.....	103.5	125.5	97.6	149.2	144.0	155.7	151.1	176.4	160.3	151.5

Subsection 3.—Field Crops

A wide variety of crop growing conditions were observed throughout Canada during the 1964 season. The Prairie Provinces received only limited moisture in the fall and winter of 1963-64 but spring rains over most of the region provided enough moisture to make a good seed bed for spring-sown crops. The main exception was over a considerable area of northern and central Saskatchewan where dry conditions were experienced for much of the growing season. As the summer progressed, Manitoba and eastern Saskatchewan received sufficient rainfall to properly advance all crops but in the northwestern quarter of Saskatchewan and the adjacent area of Alberta moisture was limited to local showers and, as a result, stands were thin. Hot, dry weather in the southwestern quarter of Saskatchewan and in southeastern Alberta in the latter part of June and early July reduced yields considerably but normal growing conditions were experienced in the western sections of Alberta. The Peace River area received adequate to excessive moisture and this, along with poor harvesting weather, caused some reduction in final outturns.

In Ontario, growing conditions were variable. Generally adequate moisture was received in the southwestern part of the province to assure good crops but drought conditions prevailed throughout the summer months in many counties in the eastern part and extended into adjacent areas of western Quebec. Rainfall was sufficient in eastern Quebec and the Maritime Provinces to develop good crops.

Average progress was made with the harvest in southern areas of the Prairie Provinces but operations were somewhat delayed in most northern sections by wet, cool weather from mid-August to early October. Good weather prevailed during the remainder of October permitting most farmers to harvest their crops, although grade losses resulted. Wet, cool weather also caused delays in British Columbia. Harvesting conditions in most of Eastern Canada were quite satisfactory.

The index of field crop production for Canada in 1964 (1949 = 100) was 154.5 compared with the 1963 record level of 176.5. In Manitoba, crop outturns were larger than the preceding year but production in Saskatchewan dropped from the exceptional level of 249.5 in 1963 to 165.5 in 1964 and in Alberta from 205.9 to 185.9. In Ontario, mainly because of the record corn crop, the index stood at an all-time high of 145.8 compared with the 1963 index of 135.3. Only minor changes occurred in the 1964 index in Quebec, New Brunswick, Nova Scotia and Prince Edward Island.

The 1964 wheat crop in Canada was 600,424,000 bu., some 17 p.c. below the all-time record of 723,442,000 bu. set in 1963 but 29 p.c. above the five-year (1955-59) average of 465,618,000; the crop was the fourth largest on record. Yield per acre dropped to 20.2 bu. compared with 26.2 bu. in 1963.

Carryover stocks of oats and barley and commercial stocks of corn were at the unusually high level of 6,000,000 tons at Aug. 1, 1964, some 1,200,000 tons more than in 1963 and double the 1962 opening stocks. Out of the 1964 production of feed grains (corn, oats, barley, mixed grains and buckwheat) corn was the only crop to show a significant increase. In total, production of these feed grains amounted to some 12,700,000 tons as compared with 15,400,000 tons in 1963. Although the 1964 figure was only slightly below the 1958-62 average of 12,900,000 tons, it still ranked next to the lowest production total in that five-year period. Reflecting the decline in production which more than offset an increase in opening stocks, total domestic supplies of the feed grains amounted to 18,700,000 tons as compared with 20,200,000 tons in 1963-64 and the five-year average of 17,700,000 tons. Tame hay production in 1964, at 21,365,000 tons, was 7 p.c. smaller than the 1963 record of 23,014,000 tons but the 1964 crop of fodder corn produced 4,974,000 tons, 11 p.c. greater than the 1963 total of 4,465,000 tons.

The 1964 productions of soybeans and rapeseed showed noticeable increases but outturns of the other three oilseed crops (flaxseed, sunflower and mustard seed) each decreased. The flaxseed crop was 11 p.c. below the 1963 production and 16 p.c. below the 1955-59 average. Rapeseed production, up 34 p.c. compared with 1963, was double the 1955-59 average bushels; the area seeded to this crop was about 46 p.c. larger than in 1963 but average yields of 15.8 bu. per acre were some 10 p.c. lower. The soybean crop was 39 p.c. larger than the 1963 crop, the average yield per acre being at a next-to-record 30.2 bu. compared with 21.9 bu. a year earlier and a 1955-59 average of 25.2 bu. Total production of sunflower seed was slightly below the 1963 crop but almost double the five-year average. The acreage sown to mustard seed was only 48 p.c. of that allotted to this crop in 1963 and, with yields down by 28 p.c., production of the crop was greatly reduced.

Outturns of potatoes, field roots and sugar beets were above the 1963 levels. New Brunswick still retains the lead in the production of potatoes, producing 11,016,000 cwt., followed by Ontario, Quebec and Prince Edward Island with 10,494,000 cwt., 8,208,000 cwt. and 7,892,000 cwt., respectively.

The 1964 gross farm value of field crops was not yet available at the time of going to press. However, the 1963 gross farm value for all crops amounted to \$2,511,933,000, of which wheat contributed \$1,259,223,000 or 50 p.c. In the great wheat-growing province of Saskatchewan the 1963 wheat crop was valued at a record \$862,750,000, making up 68 p.c. of the gross farm value of Canadian wheat and 34 p.c. of the gross farm value of all Canadian field crops.

9.—Acreages, Yields and Prices of Principal Field Crops 1961-64, with Average for 1955-59

(Exclusive of Newfoundland)

Crop and Year	Area	Yield per Acre	Pro-duction	Average Price	Total Value ¹	Crop and Year	Area	Yield per Acre	Pro-duction	Average Price	Total Value ¹
	'000 acres	bu.	'000 bu.	\$ per bu.	\$'000		'000 acres	bu.	'000 bu.	\$ per bu.	\$'000
Wheat—						Mixed Grains—					
Av. 1955-59	22,730	20.5	465,618	1.31	608,018	Av. 1955-59	1,513	42.6	64,427	0.81	52,374
1961.....	25,316	11.2	283,394	1.72	486,324	1961.....	1,566	39.2	61,310	0.89	54,775
1962.....	26,817	21.1	565,554	1.66	941,436	1962.....	1,522	47.4	72,186	0.88	63,343
1963 [*]	27,566	26.2	723,442	1.74	1,259,223	1963 [*]	1,411	48.2	67,937	0.85	58,050
1964.....	29,686	20.2	600,424	2	2	1964.....	1,431	46.4	66,395	2	2
Oats—						Flaxseed—					
Av. 1955-59	9,716	38.6	374,764	0.64	238,658	Av. 1955-59	2,593	8.7	22,544	2.68	60,441
1961.....	8,543	33.2	283,965	0.75	212,795	1961.....	2,075	6.9	14,318	3.33	47,612
1962.....	10,591	46.6	493,610	0.67	329,528	1962.....	1,445	11.1	16,042	3.06	49,084
1963 [*]	9,488	47.8	453,102	0.62	280,797	1963 [*]	1,682	12.6	21,116	2.91	61,475
1964.....	8,191	43.6	357,178	2	2	1964.....	1,916	9.8	18,813	2	2
Barley—						Potatoes—					
Av. 1955-59	8,971	26.5	237,926	0.79	187,661	Av. 1955-59	305	132.2	40,297	1.92	77,504
1961.....	5,529	20.4	112,640	1.05	118,810	1961.....	306	144.3	44,108	1.40	61,933
1962.....	5,287	31.4	165,888	0.94	156,036	1962.....	288	162.0	46,871	1.57	73,118
1963 [*]	6,160	35.8	220,664	0.94	207,937	1963 [*]	285	160.5	45,809	1.72	78,609
1964.....	5,455	30.6	166,816	2	2	1964.....	281	165.9	46,564	2	2
Rye—						Tame Hay—					
Av. 1955-59	577	16.2	9,362	0.92	8,568	Av. 1955-59	11,291	1.72	19,412	15.30	296,922
1961.....	561	11.6	6,519	1.07	6,983	1961.....	12,229	1.70	20,812	15.63	325,327
1962.....	624	19.3	12,044	1.06	12,819	1962.....	12,370	1.82	22,536	15.95	359,354
1963 [*]	652	19.7	12,848	1.19	15,295	1963 [*]	12,352	1.86	23,014	16.39	377,101
1964.....	680	18.0	12,220	2	2	1964.....	12,507	1.71	21,365	2	2

¹ Gross value of farm production; does not represent cash income from sales.² Not available at timeof going to press; will be published in one of the regularly scheduled crop reports and in the *Quarterly Bulletin of Agricultural Statistics* (Catalogue No. 21-003).

10.—Acreages, Production and Values of Principal Field Crops, by Province, 1963 and 1964, with Average for 1955-59

(Exclusive of Newfoundland)

Field Crop and Province	Area			Total Production			Gross Farm Value ¹	
	Average 1955-59	1963	1964	Average 1955-59	1963	1964	Average 1955-59	1963
	'000 acres	'000 acres	'000 acres	'000 bu.	'000 bu.	'000 bu.	\$'000	\$'000
Wheat.....	22,730	27,566	29,686	465,618	723,442	600,424	608,018	1,259,223
Prince Edward Island...	4	5	4	99	153	132	164	260
Nova Scotia.....	1	1	1	31	30	29	50	50
New Brunswick.....	2	2	3	62	58	95	104	99
Quebec.....	15	8	11	350	216	283	565	367
Ontario—								
Winter.....	560	442	455	19,182	17,748	18,246	26,511	30,206
Spring.....	18	17	17	397	437	439	547	747
Manitoba.....	2,325	3,153	3,385	54,000	61,000	85,000	73,128	104,310
Saskatchewan.....	14,494	17,010	19,200	274,000	493,000	348,000	358,466	862,750
Alberta.....	5,253	5,933	6,495	116,200	149,000	145,000	146,824	257,770
British Columbia.....	58	94	115	1,298	1,800	3,200	1,660	2,664
Oats.....	9,716	9,488	8,191	374,764	453,102	357,178	238,658	280,797
Prince Edward Island...	92	86	92	4,014	3,900	5,272	2,983	3,120
Nova Scotia.....	42	32	34	1,891	1,400	1,642	1,756	1,232
New Brunswick.....	122	87	82	5,081	3,500	3,895	3,925	2,870
Quebec.....	1,271	1,139	1,184	44,582	45,539	47,597	38,017	39,164
Ontario.....	1,644	1,756	1,663	78,756	91,663	89,472	57,774	67,831

¹ Values for 1964 not available at time of going to press; see footnote², Table 9.

**10.—Acreages, Production and Values of Principal Field Crops, by Province, 1963 and 1964,
with Average for 1955-59—continued**

Field Crop and Province	Area			Total Production			Gross Farm Value ¹	
	Average 1955-59	1963	1964	Average 1955-59	1963	1964	Average 1955-59	1963
	'000 acres	'000 acres	'000 acres	'000 bu.	'000 bu.	'000 bu.	\$'000	\$'000
Oats—concluded								
Manitoba	1,557	1,620	1,635	57,200	62,000	73,000	32,544	34,100
Saskatchewan	2,537	2,216	1,469	88,600	118,000	54,000	47,724	64,900
Alberta	2,362	2,424	1,950	92,400	124,000	79,000	51,352	65,720
British Columbia	89	78	82	4,240	3,100	4,300	2,583	1,860
Barley	8,971	6,160	5,455	237,926	220,664	166,816	187,661	207,937
Prince Edward Island	1	18	11	43	750	582	44	802
Nova Scotia	2	2	2	53	61	75	59	69
New Brunswick	5	4	3	144	123	134	153	143
Quebec	30	14	14	916	464	506	1,026	543
Ontario	102	89	113	3,874	3,966	5,119	3,921	4,204
Manitoba	1,639	584	497	38,400	16,000	16,000	32,198	15,520
Saskatchewan	3,485	1,930	1,400	87,400	78,000	34,000	68,312	74,100
Alberta	3,642	3,408	3,320	105,200	119,000	107,000	80,526	110,670
British Columbia	65	112	95	1,896	2,300	3,400	1,422	1,886
Fall Rye	430	553	579	7,380	11,013	11,120	6,802	13,111
Quebec	7	3	2	147	70	55	173	80
Ontario	76	64	56	1,708	1,551	1,422	1,783	1,719
Manitoba	69	104	146	1,270	2,350	3,050	1,148	2,938
Saskatchewan	191	206	216	2,670	4,300	3,400	2,372	5,160
Alberta	85	174	157	1,540	2,700	3,150	1,292	3,159
British Columbia	2	2	2	45	47	43	35	55
Spring Rye	147	99	101	1,982	1,830	1,100	1,766	2,184
Manitoba	8	3	3	112	50	50	102	62
Saskatchewan	114	69	73	1,520	1,300	700	1,365	1,500
Alberta	25	26	25	350	480	350	299	562
All Rye	577	652	680	9,362	12,848	12,220	8,568	15,295
Quebec	7	3	2	147	70	55	173	80
Ontario	76	64	56	1,708	1,551	1,422	1,783	1,719
Manitoba	77	107	149	1,382	2,400	3,100	1,250	3,000
Saskatchewan	305	275	289	4,190	5,600	4,100	3,737	6,720
Alberta	110	200	182	1,890	3,180	3,500	1,591	3,721
British Columbia	2	2	2	45	47	43	35	55
Peas	77	54	70	1,264	1,064	1,585	2,721	2,516
Quebec	3	2	2	55	47	53	217	176
Ontario	6	2	3	105	52	64	260	143
Manitoba	51	37	52	747	700	1,196	1,281	1,610
Saskatchewan	3	3	4	46	65	44	107	130
Alberta	8	8	8	179	168	198	499	386
British Columbia	6	2	2	133	32	40	357	71
Beans	68	67	76	1,167	1,456	1,879	4,420	6,291
Quebec	1	1	1	23	13	19	100	57
Ontario	66	66	75	1,143	1,443	1,860	4,320	6,234
Soybeans	248	228	231	6,256	5,002	6,976	12,379	14,006
Ontario	245	228	231	6,220	5,002	6,976	12,307	14,006
Buckwheat	114	50	60	2,248	1,186	1,267	2,510	1,503
New Brunswick	5	3	3	144	94	122	164	113
Quebec	39	16	14	926	389	355	1,149	459
Ontario	35	17	16	774	403	390	839	496
Manitoba	35	15	26	404	300	400	359	435
Mixed Grains	1,513	1,411	1,431	64,427	67,987	66,395	52,374	58,050
Prince Edward Island	58	48	45	2,580	2,350	2,628	2,262	2,092
Nova Scotia	10	8	9	415	308	460	423	314
New Brunswick	6	8	8	249	333	394	230	322
Quebec	176	89	92	6,281	3,479	3,768	6,790	3,896
Ontario	902	720	725	43,427	40,077	40,455	35,003	34,484
Manitoba	87	126	126	2,631	3,900	4,900	1,802	2,964
Saskatchewan	62	100	94	1,599	4,400	2,600	1,067	3,304
Alberta	209	309	328	7,057	13,000	11,000	4,647	10,531
British Columbia	4	4	4	187	140	190	149	131

¹ Values for 1964 not available at time of going to press; see footnote², Table 9.

10.—Acreages, Production and Values of Principal Field Crops, by Province, 1963 and 1964, with Average for 1955-59—concluded

Field Crop and Province	Area			Total Production			Gross Farm Value ¹	
	Average 1955-59	1963	1964	Average 1955-59	1963	1964	Average 1955-59	1963
	'000 acres	'000 acres	'000 acres	'000 bu.	'000 bu.	'000 bu.	\$'000	\$'000
Flaxseed	2,593	1,682	1,916	22,544	21,116	18,813	60,441	61,475
Quebec.....	—	29	36	—	394	511	—	1,206
Ontario.....	18	23	24	238	411	383	643	1,171
Manitoba.....	662	820	984	5,040	9,300	9,300	13,604	26,505
Saskatchewan.....	1,411	506	521	11,560	7,200	4,500	30,788	21,535
Alberta.....	493	303	350	5,620	3,700	4,100	15,184	11,026
British Columbia.....	8	1	2	86	11	19	223	32
Rapeseed	389	478	700	5,508	8,360	11,068	8,774	21,042
Quebec.....	19	45	70	270	760	1,168	458	1,900
Manitoba.....	328	210	262	4,621	4,040	4,200	7,349	10,100
Saskatchewan.....	42	223	368	616	3,560	5,700	967	9,042
Alberta.....	—	—	—	'000 lb.	'000 lb.	'000 lb.	—	—
Sunflower Seed	36	42	82	20,058	39,838	39,750	849	1,782
Quebec.....	32	37	48	16,103	35,150	25,200	719	1,547
Saskatchewan.....	—	4	27	—	3,150	10,800	—	158
Alberta.....	—	2	8	—	1,538	3,750	—	77
Mustard Seed	95	155	74	74,701	138,440	47,750	2,822	5,630
Manitoba.....	—	20	10	209	15,500	6,750	10	775
Saskatchewan.....	—	63	29	—	61,740	18,000	—	2,346
Alberta.....	95	72	35	74,493	61,200	23,000	2,812	2,509
				'000 bu.	'000 bu.	'000 bu.		
Shelled Corn	514	552	660	30,718	36,184	52,965	35,554	49,550
Ontario.....	507	548	650	30,539	36,004	52,715	35,353	49,325
Manitoba.....	7	4	10	178	180	250	201	225
				'000 cwt.	'000 cwt.	'000 cwt.		
Potatoes	305	285	281	40,297	45,809	46,564	77,504	78,609
Prince Edward Island.....	44	42	40	7,534	8,300	7,892	11,750	12,450
Nova Scotia.....	10	7	7	1,433	1,000	965	2,860	1,800
New Brunswick.....	46	53	54	8,662	10,828	11,016	12,988	15,159
Quebec.....	93	68	61	9,813	8,364	8,208	20,441	15,473
Ontario.....	54	51	53	7,112	9,792	10,494	15,497	19,584
Manitoba.....	16	21	24	1,274	2,205	2,940	2,504	2,932
Saskatchewan.....	14	13	12	881	1,100	920	2,283	2,035
Alberta.....	18	22	21	1,683	2,500	2,429	3,738	4,875
British Columbia.....	10	9	9	1,905	1,720	1,700	5,443	4,300
				'000 tons	'000 tons	'000 tons		
Field Roots	36	26	25	391	315	339	8,419	7,089
Prince Edward Island.....	6	3	3	80	38	48	1,358	722
Nova Scotia.....	3	2	2	51	28	25	1,284	504
New Brunswick.....	3	2	2	32	22	20	804	374
Quebec.....	9	6	6	68	47	44	1,805	893
Ontario.....	15	13	12	160	180	202	3,168	4,596
Time Hay	11,291	12,352	12,507	19,412	23,014	21,365	296,922	377,101
Prince Edward Island.....	201	180	180	356	320	364	4,597	3,840
Nova Scotia.....	296	230	227	613	500	477	10,549	8,000
New Brunswick.....	374	283	280	696	560	540	9,849	7,840
Quebec.....	3,464	3,430	3,432	5,962	6,380	6,178	92,154	102,080
Ontario.....	3,278	3,164	3,150	6,233	6,918	6,426	90,040	122,449
Manitoba.....	713	1,039	1,078	1,239	1,900	1,600	14,741	28,500
Saskatchewan.....	785	1,061	1,110	1,016	1,800	1,180	14,812	25,200
Alberta.....	1,829	2,564	2,628	2,521	3,800	3,600	41,202	60,800
British Columbia.....	351	401	422	777	836	1,000	18,972	18,392
Fodder Corn	375	396	425	3,637	4,465	4,974	17,527	25,300
Quebec.....	68	52	55	626	615	636	3,997	3,782
Ontario.....	282	297	315	2,854	3,460	4,032	12,409	18,684
Manitoba.....	21	41	49	108	326	245	708	2,282
Saskatchewan.....	2	2	2	5	10	6	65	120
British Columbia.....	3	4	4	44	54	55	349	432
Sugar Beets	87	95	101	1,098	1,286	1,298	15,521	23,586
Quebec.....	6	11	11	68	113	151	953	1,803
Ontario.....	24	17	19	329	245	336	3,998	5,690
Manitoba.....	21	28	30	208	348	285	2,918	5,793
Alberta.....	37	40	42	493	580	527	7,652	10,300

¹ Values for 1964 not available at time of going to press; see footnote², Table 9.² Fewer than 500 acres.

11.—Acreages and Production of Grain in the Prairie Provinces, 1955-64

Grain	1958	1959	1960	1961	1962	1963	1964
ACREAGES							
	'000 acres	'000 acres	'000 acres	'000 acres	'000 acres	'000 acres	'000 acres
Wheat.....	21,480	23,970	23,900	24,629	26,237	26,996	29,080
Oats.....	5,810	5,626	6,344	5,122	7,152	6,260	5,054
Barley.....	9,104	7,700	6,680	5,361	5,097	5,922	5,217
Rye.....	431	458	490	493	556	583	620
Flaxseed.....	2,526	2,026	2,481	2,051	1,396	1,629	1,855
Rapeseed.....	626	214	763	710	371	478	700
PRODUCTION							
	'000 bu.	'000 bu.	'000 bu.	'000 bu.	'000 bu.	'000 bu.	'000 bu.
Wheat.....	372,000	430,000	498,000	260,000	546,000	703,000	578,000
Oats.....	186,000	191,000	244,000	129,000	322,000	304,000	206,000
Barley.....	231,000	209,000	187,000	106,000	158,000	213,000	157,000
Rye.....	5,600	6,760	8,560	4,836	10,400	11,180	10,700
Flaxseed.....	22,000	16,900	22,000	13,900	15,300	20,300	17,900
Rapeseed.....	7,762	3,560	11,120	11,220	5,860	8,360	11,068

Stocks of Grain in Canada.—Table 12 shows the stocks of Canadian grain on hand in Canada and in the United States on July 31 for the years 1960-64, with averages for the five-year periods 1950-54 and 1955-59. Stocks in Canada are separated into those in commercial positions and those on farms. Stocks on farms and in country elevators in the Prairie Provinces are given separately.

12.—Carryover of Canadian Grain as at July 31, 1960-64, with Averages for 1950-54 and 1955-59

NOTE.—Figures for individual years before 1960 will be found in the corresponding table of previous editions of the Year Book.

Grain and Year	Total in Canada and United States	Total in Canada	In Commercial Storage in Canada	On Farms in Canada	Prairie Provinces	
					On Farms	In Country Elevators
	bu.	bu.	bu.	bu.	bu.	bu.
Wheat—						
Av. 1950-54.....	304,088,145	303,087,359	227,189,959	75,897,400	73,600,000	113,508,787
Av. 1955-59.....	617,264,667	616,947,244	401,923,244	215,024,000	211,600,000	235,770,759
1960.....	599,588,136	599,588,136	455,888,136	143,700,000	142,000,000	260,945,004
1961.....	607,840,667	607,840,667	437,390,667	170,450,000	168,000,000	244,893,302
1962.....	391,058,273	391,058,273	331,888,273	59,170,000	56,000,000	160,966,480
1963.....	487,247,241	487,247,241	422,547,241	64,700,000	63,000,000	231,420,969
1964.....	459,440,128	459,440,128	338,800,128	120,640,000	118,000,000	193,860,624
Oats—						
Av. 1950-54.....	103,723,676	102,717,439	34,956,239	67,761,200	55,500,000	20,442,787
Av. 1955-59.....	140,236,549	140,051,508	43,511,508	96,540,000	78,800,000	28,289,269
1960.....	100,827,492	100,827,492	20,827,492	80,000,000	56,000,000	15,278,425
1961.....	115,153,740	115,153,740	21,453,740	93,700,000	75,000,000	11,192,401
1962.....	79,066,164	79,066,164	22,166,164	56,900,000	36,000,000	14,029,060
1963.....	150,278,486	150,278,486	57,878,486	92,400,000	68,000,000	40,401,480
1964.....	179,407,849	179,407,849	50,607,849	128,800,000	108,000,000	38,930,666
Barley—						
Av. 1950-54.....	82,186,470	82,028,552	44,888,752	37,139,800	36,200,000	24,153,330
Av. 1955-59.....	118,906,634	118,783,588	60,532,588	58,251,000	56,000,000	37,528,726
1960.....	128,469,650	128,469,650	58,469,650	70,000,000	68,000,000	42,758,000
1961.....	112,557,260	112,262,633	52,162,633	60,100,000	58,000,000	29,376,809
1962.....	57,824,054	57,824,054	31,541,054	26,280,000	24,000,000	17,615,208
1963.....	89,245,306	89,245,306	60,295,306	28,950,000	27,000,000	41,360,678
1964.....	118,270,178	118,270,178	58,270,178	60,000,000	58,000,000	37,713,677

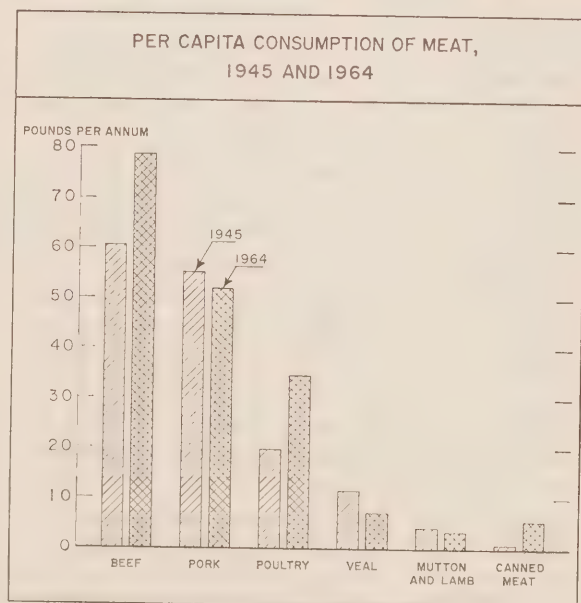
12.—Carryover of Canadian Grain as at July 31, 1960-64, with Averages for 1950-54 and 1955-59—concluded

Grain and Year	Total in Canada and United States	Total in Canada	In Commercial Storage in Canada	On Farms in Canada	Prairie Provinces	
					On Farms	In Country Elevators
	bu.	bu.	bu.	bu.	bu.	bu.
Rye—						
Av. 1950-54.....	11,656,052	11,000,586	6,136,186	4,864,400	4,786,000	2,031,544
Av. 1955-59.....	13,467,828	13,237,663	5,078,663	8,159,000	7,820,000	2,327,160
1960.....	6,753,391	6,581,640	2,781,640	3,800,000	3,600,000	1,864,827
1961.....	7,417,007	7,417,007	4,817,007	2,600,000	2,400,000	1,931,297
1962.....	3,788,786	3,717,786	2,527,786	1,190,000	1,150,000	733,490
1963.....	4,159,399	4,159,399	3,609,399	550,000	530,000	1,605,693
1964.....	7,051,748	6,624,181	4,974,181	1,650,000	1,600,000	2,415,499
Flaxseed—						
Av. 1950-54.....	3,273,720	3,273,720	2,285,920	987,800	965,000	417,047
Av. 1955-59.....	5,068,048	5,068,048	3,752,448	1,315,600	1,296,000	913,806
1960.....	4,824,392	4,824,392	4,064,392	760,000	750,000	1,191,891
1961.....	7,579,801	7,579,801	6,169,801	1,410,000	1,400,000	1,254,024
1962.....	5,268,927	5,268,927	3,948,927	1,320,000	1,300,000	1,206,994
1963.....	3,988,169	3,988,169	3,178,169	810,000	800,000	1,444,034
1964.....	6,550,719	6,550,719	5,250,719	1,300,000	1,300,000	1,873,753

Subsection 4.—Livestock and Poultry

Livestock.—The most outstanding livestock development in 1964 was the sharp increase in the number of cattle slaughtered, which was the more remarkable considering the high slaughtering in 1963. Also exceptional was the importation of some 30,000 slaughter cattle from the United States compared with virtually no imports of fat cattle in the previous three years. Despite this large supply, prices remained steady, there being a strong demand for beef; the latter was a reflection of increased incomes resulting from the improved performance of the economy in 1964. Noteworthy also were lower exports of feeder cattle, a reduction in the rate of decline in the number of milk cows and a continued but more moderate increase in beef cattle. Swine numbers rose again, particularly in the west, but sheep numbers continued to decline. The total number of cattle and calves on farms in Canada (exclusive of Newfoundland) at June 1, 1964 was estimated at 12,817,000, a rise of 512,000 over the June 1, 1963 total of 12,305,000. The number of milk cows went down from 2,914,500 to 2,906,000 and other cattle increased from 9,390,500 to 9,911,000.

The interesting aspect of the per capita disappearance of meats in 1964 was the almost 5-lb. increase in con-



sumption of beef over 1963. This brought the per capita disappearance up to 78.7 lb., an all-time high. Figures for the other red meats were: veal, 7.0 lb. (6.7 in 1963); mutton and lamb 3.4 lb. (3.9); pork 51.9 lb. (50.7); offal 3.9 lb. (4.0); and canned meats, 4.5 lb. (4.4). All figures are on a cold dressed carcass basis.

Tables 13 and 14 give numbers and values of livestock on farms in 1963 and 1964 compared with the figures for 1955.

13.—Livestock on Farms, by Province, as at June 1, 1955, 1963 and 1964

(Exclusive of Newfoundland and the Yukon and Northwest Territories)

Province and Item	1955	1963	1964	Province and Item	1955	1963	1964
	'000	'000	'000		'000	'000	'000
Prince Edward Island—				Manitoba—			
Horses.....	15.4	6.2	5.3	Horses.....	80.0	42.5	39.0
Milk cows ¹	43.5	37.0	37.0	Milk cows ¹	221.0	182.0	182.0
Other cattle.....	75.5	84.0	87.0	Other cattle.....	598.0	883.0	957.0
Sheep.....	34.5	18.0	18.0	Sheep.....	75.5	73.0	66.0
Swine.....	57.0	56.0	61.0	Swine.....	351.0	385.0	450.0
Nova Scotia—				Saskatchewan—			
Horses.....	18.6	7.3	6.6	Horses.....	180.0	89.0	84.0
Milk cows ¹	82.5	59.5	59.0	Milk cows ¹	282.0	211.0	193.0
Other cattle.....	105.5	98.5	100.0	Other cattle.....	1,400.0	1,936.0	2,107.0
Sheep.....	90.0	51.0	47.0	Sheep.....	143.0	164.0	165.0
Swine.....	36.0	56.0	56.0	Swine.....	605.0	423.0	505.0
New Brunswick—				Alberta—			
Horses.....	20.7	7.3	6.8	Horses.....	164.0	103.0	96.0
Milk cows ¹	86.5	59.0	58.0	Milk cows ¹	285.0	277.0	274.0
Other cattle.....	94.5	95.0	95.0	Other cattle.....	1,965.0	2,658.0	2,861.0
Sheep.....	63.0	41.0	34.5	Sheep.....	409.0	424.0	409.0
Swine.....	55.0	46.0	43.0	Swine.....	1,195.0	1,165.0	1,370.0
Quebec—				British Columbia—			
Horses.....	174.0	84.0	78.0	Horses.....	28.0	24.5	25.0
Milk cows ¹	1,035.0	1,048.0	1,060.0	Milk cows ¹	90.0	91.0	89.0
Other cattle.....	940.0	932.0	922.0	Other cattle.....	314.0	409.0	433.0
Sheep.....	338.0	152.0	144.0	Sheep.....	81.0	96.0	93.0
Swine.....	1,005.0	1,047.0	1,036.0	Swine.....	55.5	37.0	39.0
Ontario—				Totals—			
Horses.....	151.0	84.0	83.0	Horses.....	831.7	447.8	423.7
Milk cows ¹	1,025.0	950.0	954.0	Milk cows ¹	3,150.5	2,914.5	2,906.0
Other cattle.....	1,900.0	2,295.0	2,349.0	Other cattle.....	7,452.5	9,390.5	9,911.0
Sheep.....	400.0	321.0	310.0	Sheep.....	1,634.0	1,340.0	1,286.5
Swine.....	1,440.0	1,995.0	2,060.0	Swine.....	4,799.5	5,210.0	5,620.0

¹ Cows and heifers, two years old or over, kept for milk purposes.

14.—Average Value per Head of Farm Livestock, by Province, 1955, 1963 and 1964

(Exclusive of Newfoundland and the Yukon and Northwest Territories)

Province and Item	1955	1963	1964	Province and Item	1955	1963	1964
	\$	\$	\$		\$	\$	\$
Prince Edward Island—				Manitoba—			
Horses.....	85	127	137	Horses.....	67	116	127
All cattle.....	93	117	118	All cattle.....	109	143	141
Milk cows ¹	143	178	182	Milk cows ¹	157	204	203
Other cattle.....	86	90	90	Other cattle.....	119	130	129
Sheep.....	16	14	14	Sheep.....	16	14	14
Swine.....	30	28	26	Swine.....	26	27	25
Nova Scotia—				Saskatchewan—			
Horses.....	119	160	180	Horses.....	55	101	104
All cattle.....	98	124	122	All cattle.....	104	144	142
Milk cows ¹	139	171	171	Milk cows ¹	146	209	207
Other cattle.....	86	95	93	Other cattle.....	120	137	136
Sheep.....	16	15	14	Sheep.....	15	15	15
Swine.....	30	26	28	Swine.....	22	27	26
New Brunswick—				Alberta—			
Horses.....	116	182	198	Horses.....	62	109	112
All cattle.....	93	114	116	All cattle.....	108	144	141
Milk cows ¹	135	158	161	Milk cows ¹	164	216	210
Other cattle.....	80	87	88	Other cattle.....	124	136	135
Sheep.....	16	15	14	Sheep.....	17	15	15
Swine.....	30	27	27	Swine.....	27	29	26
Quebec—				British Columbia—			
Horses.....	145	207	206	Horses.....	74	131	135
All cattle.....	90	135	129	All cattle.....	107	143	139
Milk cows ¹	124	183	174	Milk cows ¹	151	207	203
Other cattle.....	76	81	78	Other cattle.....	117	128	126
Sheep.....	14	14	14	Sheep.....	19	18	17
Swine.....	27	29	27	Swine.....	29	30	29
Ontario—				Totals—			
Horses.....	114	171	174	Horses.....	91	141	146
All cattle.....	121	154	154	All cattle.....	107	144	142
Milk cows ¹	163	220	220	Milk cows ¹	146	201	197
Other cattle.....	124	127	127	Other cattle.....	116	126	126
Sheep.....	20	19	19	Sheep.....	17	16	16
Swine.....	31	30	29	Swine.....	28	29	27

¹ Cows and heifers, two years old or over, kept for milk purposes.

The federal Department of Agriculture inspects all livestock in plants designated as inspected establishments under the Meat and Canned Foods Act. A record is kept of these inspections and figures from 1955 are given in Table 15. Local wholesale butcherings and slaughtering carried out by retail butchers and by farmers for their own use are not included. Actually, the slaughtering and meat packing industry is concentrated in a comparatively small number of large establishments to facilitate greater efficiency and utilization of products; thus the figures of Table 15 are fairly inclusive. The slaughtering and meat packing industry is dealt with in its proper relation to all other manufacturing enterprises in Chapter XVI of this volume. On a gross value basis, it normally ranks among the four largest manufacturing industries in Canada but it owes its importance to the value of raw products obtained from the farmer and the rancher rather than to the value added by the manufacturing process.

Almost 14 p.c. more cattle were slaughtered in inspected establishments in 1964 than in 1963. Slaughtering of calves were up 12 p.c. and slaughtering of hogs by a like percentage. On the other hand, slaughtering of sheep and lambs declined by 6.5 p.c.

Price movements in 1964 are indicated by the annual average calculation of prices on the Toronto, Montreal, Winnipeg and Edmonton markets as shown in Table 42, p. 505.

**15.—Livestock Slaughtered at Inspected Establishments 1955-64, and
by Month 1963 and 1964**

(Exclusive of Newfoundland)

Year and Month	Cattle	Calves	Sheep	Hogs
	No.	No.	No.	No.
1955.....	1,702,108	828,658	591,566	5,543,787
1956.....	1,874,363	891,615	599,974	5,548,289
1957.....	1,986,251	887,102	581,903	4,971,477
1958.....	1,889,280	784,767	548,976	5,963,928
1959.....	1,744,185	676,571	569,746	8,020,766
1960.....	1,941,703	712,100	562,678	6,182,315
1961.....	2,041,473	690,286	633,347	5,849,875
1962.....	2,028,159	710,229	567,463	6,031,933
1963.....	2,126,716	671,390	532,015	5,909,506
1964.....	2,422,260	750,319	497,686	6,627,600
1963				
January.....	158,214	33,904	30,660	436,934
February.....	158,755	34,643	29,492	455,097
March.....	192,909	63,452	29,622	595,387
April.....	152,842	73,520	21,758	470,553
May.....	163,884	79,600	18,587	444,961
June.....	200,962	75,520	28,282	551,601
July.....	156,895	49,381	31,234	399,225
August.....	162,877	46,844	47,783	409,781
September.....	220,897	64,942	81,675	567,409
October.....	171,567	50,918	77,169	508,789
November.....	192,776	52,223	73,676	514,740
December.....	194,158	46,438	52,077	575,029
1964				
January.....	178,351	37,616	34,047	515,012
February.....	171,721	34,577	28,664	534,922
March.....	198,116	60,632	30,903	622,303
April.....	169,057	85,178	17,415	550,155
May.....	170,571	81,309	15,415	493,271
June.....	229,084	81,525	28,128	595,209
July.....	177,397	54,661	29,842	443,837
August.....	192,491	53,356	49,697	449,294
September.....	255,457	72,532	81,368	612,908
October.....	203,643	62,194	69,746	514,150
November.....	213,150	61,169	62,234	561,220
December.....	263,222	65,570	50,227	735,319

Poultry.—Poultry on farms and their values in 1963 and 1964 compared with 1955 are given in Table 16; production and consumption of poultry meat are included in Table 17.

16.—Numbers and Values of Poultry on Farms, by Province, as at June 1, 1955, 1963 and 1964

Province and Year	Hens and Chickens		Turkeys		Geese		Ducks		All Poultry	
	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value
	'000	\$'000	'000	\$'000	'000	\$'000	'000	\$'000	'000	\$'000
Newfoundland.....	..	..	..	..	..	..	..	..	..	..
Prince Edward Is....1955	780	780	8	23	10	21	8	9	806	833
1963	435	466	10	54	5	19	2	3	452	542
1964	445	475	9	49	4	15	2	3	460	542
Nova Scotia.....1955	1,795	2,477	37	96	4	12	3	5	1,839	2,590
1963	2,250	2,622	45	229	1	4	1	2	2,297	2,857
1964	2,110	2,323	47	231	1	3	1	2	2,158	2,559
New Brunswick....1955	1,110	1,443	43	122	5	14	2	3	1,160	1,582
1963	1,050	1,296	18	98	1	5	1	1	1,070	1,400
1964	1,070	1,344	15	77	1	4	1	1	1,087	1,426
Quebec.....1955	9,989	11,887	545	1,521	13	33	57	96	10,604	13,537
1963	13,255	12,912	600	2,838	9	33	64	123	13,928	15,906
1964	13,640	13,564	710	3,330	10	36	67	126	14,427	17,056
Ontario.....1955	25,190	26,450	1,065	3,046	101	223	150	178	26,506	29,897
1963	23,740	22,510	2,900	13,659	68	260	130	252	26,838	36,681
1964	24,450	22,928	2,910	14,696	78	312	133	261	27,571	38,197
Manitoba.....1955	5,940	4,693	550	1,116	60	108	59	57	6,609	5,974
1963	5,700	4,555	970	3,570	85	246	20	34	6,775	8,405
1964	6,270	4,925	885	3,292	75	214	18	29	7,248	8,460
Saskatchewan.....1955	7,900	5,846	610	1,269	65	131	80	74	8,655	7,320
1963	6,130	4,281	810	2,924	40	128	50	95	7,030	7,428
1964	6,050	4,132	705	2,679	35	112	50	94	6,840	7,017
Alberta.....1955	8,515	7,067	605	1,398	93	195	138	149	9,351	8,809
1963	8,200	6,082	765	3,144	90	274	85	150	9,140	9,650
1964	8,600	6,203	750	3,090	80	246	85	146	9,515	9,685
British Columbia...1955	3,800	4,674	330	848	17	49	25	31	4,172	5,602
1963	5,770	6,371	455	2,680	10	42	24	50	6,259	9,143
1964	5,990	6,821	500	2,405	9	34	25	47	6,524	9,307
Totals.....1955	65,019	65,317	3,793	9,439	368	786	522	602	69,702	76,144
1963	66,530	61,095	6,573	29,195	309	1,010	376	710	73,788	92,010
1964	68,625	62,715	6,531	29,849	293	976	381	709	75,830	94,249

17.—Production and Domestic Disappearance of Poultry Meat, 1955, 1963 and 1964

(Eviscerated weight)

Year and Item	Net Production	Total Supply	Domestic Disappearance	Per Capita Consumption
	'000 lb.	'000 lb.	'000 lb.	lb.
1955				
Fowl and chickens.....	292,328	308,933	296,149	18.9
Turkeys.....	67,574	86,982	77,778	5.0
Geese.....	2,749	2,860	2,742	0.2
Ducks.....	2,907	3,864	3,689	0.2
Totals, 1955.....	365,558	402,639	380,358	24.3

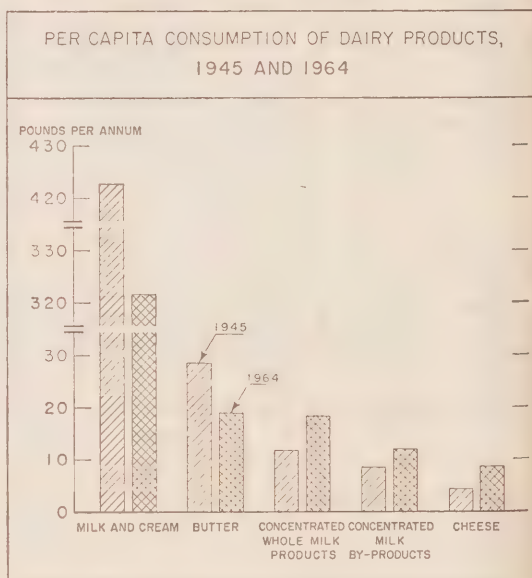
17.—Production and Domestic Disappearance of Poultry Meat, 1955, 1963 and 1964 —concluded

Year and Item	Net Production	Total Supply	Domestic Disappearance	Per Capita Consumption
	'000 lb.	'000 lb.	'000 lb.	lb.
1963				
Fowl and chickens.....	453,437	469,899	449,191	23.7
Turkeys.....	146,317	173,686	157,200	8.3
Geese.....	3,030	3,339	2,867	0.2
Ducks.....	4,197	6,217	5,616	0.3
Totals, 1963.....	606,981	653,141	614,874	32.5
1964				
Fowl and chickens.....	483,349	507,510	488,408	25.3
Turkeys.....	162,448	188,740	167,084	8.7
Geese.....	3,020	3,219	2,977	0.2
Ducks.....	4,922	6,795	6,258	0.3
Totals, 1964.....	653,739	706,264	664,727	34.5

Subsection 5.—Dairying

The dairy industry occupies a prominent position in Canadian agriculture and is an important source of farm cash receipts. Although the size of the national dairy herd has been declining gradually, milk production continues upward at the average rate of about 1 p.c. each year. There has been an over-all increase in output per cow as a result of the tendency to switch from low-producing breeds and from the following of improved livestock programs, especially through artificial insemination. Dairy herds have become fewer but larger. In 1951 about 12 p.c. of the cows were in herds of 13 or more but by 1961 the percentage had risen to 27. In Ontario and Quebec over 40 p.c. are now in this category. Increasing specialization and the change to larger herds often means better managed cows and more milk per cow.

Milk production is concentrated in Central Canada, Ontario and Quebec accounting for about 70 p.c. of the total quantity. Of the total output in 1964, 62.3 p.c. was used for factory-made dairy products, 27.6 p.c. was sold in fluid form and 10.1 p.c. was used for all purposes on farms. In recent years, fluid milk usage has risen slowly but has shown little change as a percentage of total milk production. Fluid sales, which include standard, homogenized, partly skimmed and skim milk, and a variety of creams, are being maintained by the increased demand for partly skimmed milk which has occurred as a result of a shift in emphasis from fat to non-fat constituents in milk.



18.—Production and Utilization of Milk, by Province, 1962-64

Province and Year	Milk Used in Manufacture		Milk Otherwise Used			Total Milk Production
	On Farms ¹	In Factories	Fluid Sales	Farm-Home Consumed	Fed on Farms	
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.
Newfoundland.....	..	..	..	..	..	..
Prince Edward Island.....	1962 1,451	173,145	22,448	19,340	13,792	230,176
	1963 1,381	162,701	22,245	19,600	10,649	216,576
	1964 1,264	187,014	22,730	19,960	11,492	242,460
Nova Scotia.....	1962 7,535	122,808	197,933	27,880	22,130	378,286
	1963 6,037	100,566	196,933	25,700	16,424	345,660
	1964 4,563	95,802	195,796	25,490	13,758	335,409
New Brunswick.....	1962 9,454	186,583	153,980	26,620	14,765	391,402
	1963 6,856	170,632	152,747	26,030	10,935	367,200
	1964 5,148	173,797	151,824	24,720	10,025	365,514
Quebec.....	1962 15,467	4,304,447	1,415,814	233,800	261,970	6,231,498
	1963 13,361	4,303,259	1,425,466	238,000	256,380	6,236,466
	1964 11,255	4,197,126	1,456,362	231,800	216,300	6,112,843
Ontario.....	1962 16,169	3,946,007	1,962,985	191,200	289,300	6,405,661
	1963 12,262	4,079,397	1,986,041	197,500	295,400	6,570,600
	1964 9,430	4,244,040	2,029,085	197,000	302,800	6,782,355
Manitoba.....	1962 21,341	639,392	243,457	95,630	66,440	1,066,260
	1963 16,146	622,266	246,042	96,610	68,190	1,049,254
	1964 11,349	594,179	248,662	92,220	64,150	1,010,560
Saskatchewan.....	1962 53,188	650,715	182,372	164,000	84,540	1,134,815
	1963 41,535	640,280	187,928	161,100	82,060	1,112,903
	1964 34,936	600,073	191,198	156,300	82,690	1,065,197
Alberta.....	1962 43,805	1,037,022	342,180	152,200	96,410	1,671,617
	1963 40,716	1,056,409	347,229	154,300	93,500	1,692,154
	1964 33,649	1,094,407	347,735	153,400	90,220	1,719,411
British Columbia.....	1962 5,218	356,295	451,112	25,390	34,430	872,445
	1963 4,493	320,702	457,244	24,780	33,950	841,169
	1964 3,323	326,033	471,014	24,350	32,170	856,890
Totals.....	1962 173,628	11,416,414	4,972,281	936,060	883,777	18,382,160
	1963 142,787	11,456,212	5,021,875	943,620	867,488	18,431,982
	1964 114,917	11,512,471	5,114,406	925,240	823,605	18,490,639

¹ Used in farm butter only.

19.—Farm Values of Milk Production, by Province, 1962-64

Province and Year	Value of Milk Used in Manufacture		Value of Milk Otherwise Used			Value of Total Milk Production
	On Farms ¹	In Factories	Fluid Sales	Farm-Home Consumed	Fed on Farms ²	
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	..	..	..	..	..	..
Prince Edward Island.....1962	34	4,175	899	540	885	6,533
1963	32	3,999	898	555	755	6,239
1964	29	4,683	946	577	870	7,105
Nova Scotia.....1962	184	2,976	9,321	831	971	14,283
1963	144	2,384	9,284	779	817	13,408
1964	111	2,318	9,716	777	719	13,641

¹ Used in farm butter only.² Includes values of skim milk and buttermilk retained on farms.

19.—Farm Values of Milk Production, by Province, 1962-64—concluded

Province and Year	Value of Milk Used in Manufacture		Value of Milk Otherwise Used			Value of Total Milk Production
	On Farms ¹	In Factories	Fluid Sales	Farm-Home Consumed	Fed on Farms ²	
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
New Brunswick.....1962	242	4,378	7,045	788	1,013	13,466
.....1963	173	4,040	6,996	778	848	12,835
.....1964	130	4,159	7,315	764	950	13,318
Quebec.....1962	383	107,667 ²	59,214	7,014	17,825	192,103 ²
.....1963	314	108,937	59,791	7,402	16,096	192,540
.....1964	260	110,577	62,774	7,487	14,809	195,907
Ontario.....1962	415	96,645	87,204	5,373	14,082	203,719
.....1963	299	104,378	89,062	5,925	15,195	214,859
.....1964	230	112,863	93,517	6,048	16,005	228,663
Manitoba.....1962	538	14,186	9,898	2,458	3,882	30,962
.....1963	393	13,922	10,050	2,502	3,863	30,730
.....1964	276	13,321	10,367	2,388	3,630	29,982
Saskatchewan.....1962	1,296	14,499	7,959	4,280	4,683	32,717
.....1963	994	14,304	8,234	4,285	4,888	32,705
.....1964	836	13,607	8,584	4,204	4,732	31,963
Alberta.....1962	1,086	24,445	14,529	4,064	5,917	50,041
.....1963	974	24,893	14,797	4,166	6,143	50,973
.....1964	805	26,079	15,273	4,249	6,519	52,925
British Columbia.....1962	123	9,098	25,220	767	1,179	36,387
.....1963	102	8,511	25,183	773	1,389	35,958
.....1964	77	8,759	26,000	762	1,324	36,922
Totals.....1962	4,301	278,069 ²	221,289	26,115	50,437	580,211 ²
.....1963	3,425	285,368	224,295	27,165	49,994	590,247
.....1964	2,754	296,366	234,492	27,256	49,558	610,426

¹ Used in farm butter only.² Includes values of skim milk and buttermilk retained on farms.

Historically, butter was the residual product into which the summer milk was made for storage and use during the winter months. This is still the case, particularly in Prince Edward Island, Quebec and the Prairie Provinces where slightly over half the milk is made into butter.

In 1964, about 352,000,000 lb. of creamery butter and 5,000,000 lb. of farm butter were produced in Canada. This accounted for 8,360,000,000 lb. of milk or about 45 p.c. of the national output. The demand for solids non-fat has encouraged farmers to ship increasing quantities of whole milk instead of farm-separated cream to the creameries. Whole milk used in butter manufacturing was estimated at 3,400,000,000 lb. in 1964, more than the amount used in all other manufactured dairy products. Consumption per capita of creamery butter was 18.53 lb. compared with 18.56 lb. in 1963.

During the past ten years, cheese production has gradually increased, particularly in Ontario and Quebec. These two provinces account for more than nine tenths of the total output. In 1964, some 160,500,000 lb. of cheese were produced, which represented about 1,760,000,000 lb. of milk or approximately 10 p.c. of the total milk production. Exports of all cheese, mostly cheddar, in 1964 amounted to 31,658,000 lb. compared with 25,823,000 lb. in 1963. Most of the Canadian exports of cheddar traditionally originate in Ontario, which exports about 40 p.c. of its production.

20.—Production of Butter and Cheese, by Province, 1962-64

Province and Year	Butter				Cheese
	Creamery	Dairy	Whey	Total	Factory ¹
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.
Newfoundland.....	..	..	..	..	..
Prince Edward Island.....	1962 5,927	62	24	6,013	891
	1963 5,386	59	24	5,469	1,107
	1964 5,707	54	34	5,795	1,587
Nova Scotia.....	1962 3,780	322	—	4,102	—
	1963 3,092	258	—	3,350	—
	1964 2,987	195	—	3,182	—
New Brunswick.....	1962 7,038	404	—	7,442	520
	1963 6,451	293	—	6,744	559
	1964 6,489	220	—	6,709	646
Quebec.....	1962 144,527	661	1,329	146,517	50,181
	1963 138,420	571	1,748	140,739	64,385
	1964 133,474	481	1,860	135,815	66,700
Ontario.....	1962 101,438	691	2,594	104,723	75,800
	1963 103,242	524	2,600	106,366	84,984
	1964 109,731	403	2,608	112,742	86,713
Manitoba.....	1962 25,605	912	—	26,517	631
	1963 24,901	690	—	25,591	817
	1964 23,563	485	—	24,048	944
Saskatchewan.....	1962 27,256	2,273	—	29,529	—
	1963 26,921	1,775	—	28,696	—
	1964 25,124	1,493	—	26,617	—
Alberta.....	1962 38,934	1,872	5	40,811	1,758
	1963 38,467	1,740	5	40,212	1,903
	1964 39,824	1,438	5	41,267	2,578
British Columbia.....	1962 7,215	223	—	7,438	979
	1963 5,039	192	—	5,231	989
	1964 4,923	142	—	5,065	1,111
Totals.....	1962 361,720	7,420	3,952	373,092	130,998²
	1963 351,919	6,102	4,377	362,398	154,987²
	1964 351,822	4,911	4,507	361,240	160,500²

¹ Factory-made cheese includes cheddar and other cheese made from whole milk and cream.

² Amounts

for "other cheese" are included in Quebec, Ontario and Alberta figures but, as fewer than three firms reported in the other provinces, data cannot be included except in the Canada total.

Concentrated milk products, which comprise a large group of products, both whole milk and skim milk, are moving in opposite utilization trends. The amount of milk going into whole milk products—evaporated milk, dry whole milk and partly skimmed concentrated products—is decreasing; milk used for these products amounted to 1,300,000,000 lb. in 1964, about 150,000,000 lb. less than in 1961. On the other hand, there is a rapidly expanding market for solids non-fat, in the form of dry skim milk and casein; in the period 1958-64, the quantity of whole milk from which these two products were made rose by 1,000,000,000 lb. to 3,400,000,000 lb. Casein production is concentrated in Quebec, about 96 p.c. of the national total originating in that province.

The importance of international trade in this sector of the industry is evident from the fact that of every 10 lb. of whole milk powder produced in Canada, eight are exported; of

every 10 lb. of casein produced, seven are sold abroad; and of every 10 lb. of skim milk powder produced, two are exported. In normal years, export values of dairy products are three times as large as import values.

21.—Production of Concentrated Milk Products, 1960-64

(Exclusive of Newfoundland)

Product	1960	1961	1962	1963	1964
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.
Concentrated Whole Milk Products.....	404,325	393,805	363,566	383,675	384,937
Condensed milk.....	14,420	14,814	16,313	17,475	17,621
Evaporated milk.....	316,950	324,049 ¹	292,606 ¹	313,086	314,700
Whole milk powder.....	45,829	25,622	23,310	21,907	22,330
Partly skimmed evaporated milk.....	20,178	20,419 ¹	19,024 ¹	18,108	18,250
Other whole milk products ¹	6,948	8,901	12,313	13,099	12,036
Concentrated Milk By-products.....	209,898	269,244	259,470	259,759	292,547
Condensed skim milk.....	2,602	1,918	1,816	1,346	1,060
Evaporated skim milk.....	2,769	6,210	5,335	7,073	7,382
Skim milk powder.....	171,969	213,029	192,292	176,086	203,047
Powdered buttermilk.....	8,179	9,833	10,323	10,149	9,740
Whey powder.....	11,037	19,730	18,221	30,051	32,971
Casein.....	8,000	14,024	22,197	21,426	20,150
Other milk by-products ²	5,342	4,500	9,286	13,628	18,197
Totals.....	614,223	663,049	623,036	643,434	677,484

¹ Includes malted milk, cream powder, formula milks, whole milk powder of less than 26-p.c. fat, evaporated milk of 2-p.c. fat and concentrated liquid milk manufactured by fewer than three firms. ² Includes sugar of milk (lactose), condensed buttermilk, concentrated liquid skim milk and special formula skim milk products manufactured by fewer than three firms.

22.—Production of Ice Cream Mix, by Province, 1962-64

Province	1962	1963	1964	Province	1962	1963	1964
	'000 gal.	'000 gal.	'000 gal.		'000 gal.	'000 gal.	'000 gal.
Newfoundland.....	..	..	..	Manitoba.....	1,212	1,389	1,503
Prince Edward Island..	133	153	151	Saskatchewan.....	1,168	1,313	1,357
Nova Scotia.....	910	937	1,029	Alberta.....	2,054	2,217	2,259
New Brunswick.....	555	617	659	British Columbia.....	2,398	2,576	2,636
Quebec.....	5,557	5,673	6,450	Totals.....	22,089	23,476	24,681
Ontario.....	8,102	8,601	8,637				

The estimated consumption of fluid milk and cream, on a milk basis, amounted to 4,681,896,000 pt. in 1964, which was 57,483,000 pt. higher than the 1963 estimate. Daily average consumption per capita dropped slightly to 0.68 pt. from 0.69 pt. in 1963. The estimated consumption of milk and cream is given by province in Table 23 and the domestic disappearance of all dairy products in Table 24.

23.—Estimated Consumption of Milk and Cream (expressed as Milk), by Province, 1962-64

Province and Year	Estimated Con- sumption	Daily per Capita Con- sumption	Province and Year	Estimated Con- sumption	Daily per Capita Con- sumption
	'000 pt.	pt.		'000 pt.	pt.
Newfoundland.....	..	..	Manitoba.....1962	262,858	0.77
Prince Edward Island.....	1962 32,394	0.83	1963 265,621	0.77	
1963 32,438 ⁺	0.83	1964 264,249	0.75		
1964 33,093	0.85	Saskatchewan.....1962	268,506	0.79	
Nova Scotia.....	1962 175,048	0.64	1963 ⁺ 270,565	0.79	
1963 172,583	0.62 ⁺	1964 269,379	0.78		
1964 171,540	0.62	Alberta.....1962	383,240	0.77	
New Brunswick.....	1962 140,000	0.63	1963 388,782 ⁺	0.76	
1963 138,587	0.62	1964 388,476	0.74		
1964 136,856	0.61	British Columbia.....1962	369,381	0.61	
Quebec.....	1962 1,278,770	0.65	1963 373,662	0.60	
1963 1,289,508	0.65	1964 384,003	0.60		
1964 1,308,653	0.64	Totals.....1962	4,580,108	0.69	
Ontario.....	1962 1,669,911	0.72	1963 4,624,413 ⁺	0.69	
1963 1,692,667	0.72	1964 4,681,896	0.68		
1964 1,725,647	0.71				

24.—Domestic Disappearance of Dairy Products, 1962-64

Product	1962		1963		1964	
	Total	Per Capita ¹	Total	Per Capita ¹	Total	Per Capita ¹
	'000 lb.	lb.	'000 lb.	lb.	'000 lb.	lb.
Milk and Cream.....	5,908,341	326.43	5,965,495	323.40	6,039,646	321.60
Milk.....	4,977,906	275.02	5,041,738	273.32	5,108,269	272.01
Cream as milk.....	930,435	51.41	923,757	50.08	931,377	49.59
Cream as product.....	192,881	10.66	193,389	10.48	197,345	10.51
Butter.....	332,255	17.89	361,790	19.11	366,528	19.02
Creamery.....	320,752	17.27	351,342	18.56	357,087	18.63
Dairy.....	7,420	0.40	6,102	0.32	4,911	0.25
Whey.....	4,083	0.22	4,346	0.23	4,550	0.24
Cheese.....	149,470	8.05	157,149	8.30	164,238	8.52
Cheddar.....	61,003	3.29	61,578	3.25	64,109	3.33
Process.....	61,109	3.29	64,638	3.42	68,503	3.55
Other.....	27,358	1.47	30,933	1.63	31,626	1.64
Concentrated Whole Milk Products ²	358,460	19.30	361,245	19.09	353,167	18.33
Evaporated.....	307,542 ⁺	16.56 ⁺	306,472	16.19	302,541	15.70
Condensed.....	16,082	0.87	17,935	0.95	17,587	0.91
Powdered.....	2,820	0.15	5,167	0.27	2,976	0.15
Concentrated Milk By-products ³	188,328	10.14	223,059	11.78	229,957	11.93
Evaporated.....	5,333	0.29	7,063	0.37	7,267	0.38
Condensed.....	1,834	0.10	1,357	0.07	1,052	0.05
Powdered.....	132,977	7.16	153,049	8.09	153,517	7.97
All Dairy Products in Terms of Milk—						
Butter.....	7,679,225	413.53	8,364,190	441.90	8,470,285	439.54
Cheese.....	1,461,542	78.70	1,534,818	81.09	1,601,990	83.13
Concentrated.....	823,770 ⁺	44.36 ⁺	848,138	44.81	819,320	42.52
Grand Totals ⁴	16,408,925 ⁺	891.89 ⁺	17,211,937	917.58	17,420,893	912.20

¹ Includes Newfoundland for all manufactured dairy products.² Includes, in addition to the items listed,

malted milk, cream powder, partly skimmed evaporated milk, whole milk powder of less than 26-p.c. fat, formula milks, evaporated milk of 2-p.c. fat, and concentrated liquid milk.

³ Includes milk by-product items not

listed, i.e., condensed buttermilk, powdered buttermilk, sugar of milk, casein, powdered w.e.v. special formula skim milk products, lactalbumin and concentrated liquid skim milk. Since the quantities used for human consumption and livestock feeding need to be separated, per capita figures include both.

⁴ Includes ice cream

milk in terms of milk.

Subsection 6.—Fruits and Vegetables

Fruits.—Commercial fruit growing in Canada is confined almost exclusively to rather limited areas in the Provinces of Nova Scotia, New Brunswick, Quebec, Ontario and British Columbia. Nova Scotia production is centred mainly in the Annapolis Valley and New Brunswick production in the St. John River Valley and Westmorland County. The fruit growing districts of Quebec are the Montreal area, the North Shore area, the Eastern Townships and the Quebec City district. Ontario fruit is grown in all the counties adjacent to the St. Lawrence River and the Great Lakes as far west as Georgian Bay, the Niagara district being the most productive. In British Columbia the four well-defined fruit areas are the Okanagan Valley, the Fraser Valley, the Kootenay and Arrow Lakes district and Vancouver Island. The climate elsewhere in Canada is not generally suitable for commercial tree-fruit culture. In most producing areas, particularly in the Annapolis Valley of Nova Scotia, the Niagara Peninsula of Ontario and the Okanagan Valley of British Columbia, fruit growing is either the principal or one of the most important forms of agriculture and is very important to the economy of those areas. Apples and small fruits are produced commercially in the provinces named but tender tree fruits and commercial vineyards are limited largely to Ontario and British Columbia.

Strawberries are grown commercially in all provinces for which tree-fruit statistics are prepared, as well as in Prince Edward Island. However, this crop is produced over a somewhat wider area than are tree fruits. In Nova Scotia, for example, considerable quantities of strawberries are grown in Colchester County and farther north, as well as in the apple producing areas of the Annapolis Valley. In British Columbia most of the strawberries are grown in the Fraser Valley.

Raspberries are grown commercially in Nova Scotia, New Brunswick and Quebec but the bulk of the crop is produced in Ontario and British Columbia. The Fraser Valley of British Columbia is the most important producing area.

Wild blueberries are harvested on a commercial scale in Newfoundland, Prince Edward Island, Nova Scotia, New Brunswick and Quebec. This crop is indigenous to certain areas in these provinces and a large percentage of the crop is frozen and exported. There is also some production of cultivated blueberries, particularly in British Columbia.

A marketing system has been developed for distributing fresh fruit from the specialized production areas to all parts of the country and a large proportion of the deciduous fruit consumed in Canada is grown domestically. Considerable quantities of apples, strawberries and blueberries are exported.

Canning and processing industries have developed in the fruit growing districts and, although the importance of the processing market varies with different fruits, it provides a valuable outlet for substantial proportions of most Canadian-grown fruit crops.

Tables 25 and 26 show the estimated commercial production of fruit, by kind, for the years 1962-64 and by province for 1957-64.

25.—Estimated Commercial Production and Farm Value of Fruit, 1962-64

Kind of Fruit and Year	Quantity	Weight	Farm Value	Kind of Fruit and Year	Quantity	Weight	Farm Value
	'000 bu.	'000 lb.	\$'000		'000 bu.	'000 lb.	\$'000
Apples—				Cherries (sour)—			
1962 ^r	20,095	904,275	28,056	1962.....	212	10,600	1,005
1963 ^r	23,036	1,039,620	31,028	1963.....	346	17,300	1,716
1964.....	20,052	902,338	31,598	1964.....	604	30,200	2,003
Appricots—				Cherries (sweet)—			
1962.....	310	15,500	714	1962.....	422	21,100	2,946
1963.....	99	4,950	327	1963.....	406	20,300	3,143
1964.....	387	19,350	754	1964.....	558	27,900	4,603

25.—Estimated Commercial Production and Farm Value of Fruit, 1962-64—concluded

Kind of Fruit and Year	Quantity	Weight	Farm Value	Kind of Fruit and Year	Quantity	Weight	Farm Value
	'000 bu.	'000 lb.	\$'000		'000 qt.	'000 lb.	\$'000
Peaches—				Strawberries—			
1962.....	2,256	112,800	5,784	1962 ¹	25,455	34,016	6,080
1963.....	2,373	118,650	6,933	1963 ¹	24,166	32,224	5,860
1964.....	2,862	143,100	8,128	1964.....	30,866	41,464	7,939
Pears—				Loganberries—			
1962.....	1,720	86,000	3,471	1962.....	1,022	1,022	132
1963.....	1,688	84,400	3,999	1963.....	1,461	1,461	231
1964.....	2,000	100,000	3,942	1964.....	1,078	1,078	173
Plums and Prunes—				Grapes—			
1962.....	487	24,350	1,031	1962.....	92,435	92,435	4,739
1963.....	700	35,000	1,434	1963.....	106,760	106,760	5,739
1964.....	668	33,400	1,171	1964.....	119,581	119,581	6,015
Raspberries—				Blueberries—			
1962.....	10,901	15,494	3,129	1962.....	18,226	18,226	1,821
1963.....	12,664	18,018	3,906	1963.....	23,954	23,954	2,795
1964.....	13,765	19,750	3,854	1964.....	20,860	20,860	3,603

26.—Value of Commercial Fruit Produced, by Province, 1962-64 with Average for 1957-61

(Farm value for unpacked fruit)

Province	Average 1957-61	1962	1963	1964
	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	150	88	105	83
Prince Edward Island.....	311	326	357	393
Nova Scotia.....	2,795	3,664	4,017	3,903
New Brunswick.....	1,209	1,246	1,425	1,514
Quebec.....	6,219	9,709	11,009	11,023
Ontario.....	21,382	22,752	27,195	31,990
British Columbia.....	15,549	21,136	23,170	25,048
Totals	47,615	58,981	67,278	73,954

Vegetables.—Estimates of acreage and production of commercial vegetables in Canada are prepared for all provinces except Newfoundland, Prince Edward Island and Saskatchewan. The Province of Ontario is the largest producer, followed by Quebec and British Columbia. A wide variety of crops is grown in these three provinces and a somewhat smaller range in the Maritimes and in the Prairie Provinces.

Canning, freezing and processing of vegetables are carried on in the important producing areas. The estimates in the following tables cover output of commercial growers for processing and for sale on the fresh market but do not include acreages or production of vegetables grown for home use on farms or elsewhere.

27.—Estimated Commercial Acreage of Vegetables, by Province, 1962-64 with Average for 1957-61

Province	Av. 1957-61	1962	1963	1964
	acres	acres	acres	acres
Nova Scotia ¹	3,598	3,250	4,540	5,170
New Brunswick ¹	3,504	7,140	7,620	10,380
Quebec.....	61,958	70,340	75,440	83,170
Ontario.....	107,214	104,100	103,360	115,470
Manitoba ²	3,272	3,480	3,780	3,820
Alberta ²	14,194	16,400	15,530	16,000
British Columbia.....	15,812	16,570	14,250	13,490
Totals	209,552	221,280	224,520	247,500

¹ Prior to 1960, acreages of peas in Prince Edward Island and New Brunswick are included with Nova Scotia; in 1960, 1961, 1962 and 1963, Prince Edward Island and Nova Scotia acreages of peas are included with New Brunswick.

² Acreages of beans, corn and peas in Manitoba are included with Alberta.

**28.—Estimated Commercial Acreage and Production of Vegetables, 1962-64
with Average for 1957-61**

Vegetable	Av. 1957-61		1962		1963		1964	
	Area	Production	Area	Production	Area	Production	Area	Production
	acres	'000 lb.	acres	'000 lb.	acres	'000 lb.	acres	'000 lb.
Asparagus.....	3,806	7,328	3,950	7,191	4,180	6,540	4,030	5,775
Beans.....	12,400	47,818	17,710	62,676	23,040 ¹	79,373	28,020	98,406
Beets.....	3,214	50,758	2,880	57,214	2,780	51,601	3,220	57,104
Cabbage.....	6,914	129,151	6,430	115,102	7,130	147,908	7,420	136,635
Carrots.....	11,542	244,399	12,810	341,384	13,710	344,824	14,270	349,527
Cauliflower.....	2,612	26,902	2,860	33,899	3,110	36,640	3,150	33,770
Celery.....	1,536	43,731	1,170	42,661	1,200	44,918	1,110	40,504
Corn.....	53,344	326,752	55,950	414,514	50,550	324,556	52,180	389,417
Lettuce.....	5,655	64,730	4,910	65,394	4,790	54,071	4,990	57,067
Onions.....	7,044	139,192	8,810	228,072	9,850	256,854	9,590	215,722
Peas ¹	45,556	103,810	52,280	128,561	52,190	113,558 ¹	61,280	138,328
Spinach.....	1,134	12,179	1,100	10,934	1,120	11,033	1,090	12,642
Tomatoes.....	43,200	764,953	33,200	864,662	31,070	695,393	34,360	772,748

¹ Estimates apply only to that portion of the crop grown for processing in all provinces for which estimates are made except British Columbia.

Subsection 7.—Other Principal Farm Products

Tobacco.—Canada produces several types of leaf tobacco but by far the most important is the flue-cured or Bright Virginia type. This is produced mainly in Ontario, along with considerable quantities of burley and smaller amounts of dark (air-cured and fire-cured) tobacco. Quebec produces smaller quantities of these types as well as some cigar and pipe tobacco and small flue-cured acreages are also harvested in Prince Edward Island and Nova Scotia. In 1964, lower acreages of all types of tobacco resulted in decreased production compared with 1963. Ontario allotments for flue-cured were reduced from 99,537 acres to 73,479 acres and the crop from 180,297,000 lb. to 136,641,000 lb.; this was the main element in the over-all production and value decrease shown in Tables 29 and 30.

A study of Department of National Revenue reports on tax-paid withdrawals of tobacco products reveals changes in the smoking habits of Canadians during the past three decades. In 1922, the first year for which comparable figures are available, Canadian annual per capita consumption of cigarettes was 229; by 1959 the annual per capita consumption (calculated on the basis of total population) had increased to 1,939. The figure for 1963 was 2,110 and that for 1964 was 2,113.

**29.—Acreage, Production and Value of the Commercial Crop of Leaf Tobacco,
by Province, 1960-64**

Year	Quebec			Ontario			Other Provinces		
	Har-vested Area	Pro-duction	Value	Har-vested Area	Pro-duction	Value	Har-vested Area	Pro-duction	Value
	acres	'000 lb.	\$	acres	'000 lb.	\$	acres	'000 lb.	\$
1960.....	11,598	13,914	5,399,000	124,321	200,201	109,272,000	43	52	28,000
1961.....	11,081	11,900	4,156,000	126,718	197,664	101,059,000	118	157	80,000
1962.....	8,901	12,388	4,582,000	121,640 ¹	190,265	91,165,000	515 ¹	374	157,000
1963.....	8,933	10,776	4,046,000	104,178	189,719	86,279,000	782	649	308,000
1964.....	8,334	9,919	4,299,000	76,267	143,035	78,403,000	715	757	429,000

30.—Acreage, Production and Value of the Commercial Crop of Leaf Tobacco, by Main Type, 1960-64

Type of Tobacco and Year	Harvested Area	Average Yield per Acre	Total Production	Average Farm Price per lb.	Gross Farm Value
	acres	lb.	lb.	cts.	\$
Flue-cured.....1960	129,092	1,592	205,514,000	54.6	112,118,000
1961	127,844	1,529	195,441,000	51.6	100,870,000
1962	122,405	1,533	187,621,000	48.3	90,576,000
1963	105,814	1,764	186,648,000	45.9	85,706,000
1964	79,639	1,798	143,197,000	55.6	79,633,000
Burley.....1960	10	1,200	12,000	41.7	5,000
1961	3,681	1,770	6,516,000	37.2	2,426,000
1962	4,569	1,952	8,918,000	40.4	3,604,000
1963	4,241	3,844	8,808,000	34.1	3,471,000
1964	2,398	3,764	5,614,000	30.7	2,081,000
Cigar leaf.....1960	5,100	1,303	6,647,000	28.2	1,871,000
1961	4,418	1,264	5,584,000	25.0	1,397,000
1962	3,055	1,716	5,242,000	25.0	1,311,000
1963	2,567	1,625	4,171,000	24.0	1,002,000
1964	2,318	1,500	3,477,000	26.0	904,000
Totals ¹.....1960	135,962	1,575	214,167,000	53.6	114,699,000
1961	137,917	1,521	209,721,000	50.2	105,295,000
1962	131,056	1,548	203,027,000	47.2	95,904,000
1963	113,893	1,766	201,144,000	45.1	90,633,000
1964	85,316	1,802	153,711,000	54.1	83,131,000

¹ Includes other types not specified.

Eggs.—Egg production in 1964 at 437,906,000 doz. was 4.8 p.c. higher than the estimated output of 417,920,000 doz. in 1963 but 2.3 p.c. lower than the record production of 448,200,000 doz. in 1959. There were 4.0 p.c. more layers than in 1963 and the rate of lay per 100 layers increased to 20,095 from 19,943. The farm selling price of eggs averaged 32.7 cents per doz. compared with 38.4 cents in 1963 so that, despite the higher production, there was a decrease in total value of eggs produced.

The three Maritime Provinces produced 7.3 p.c. of all eggs in 1964; Quebec, 16.3 p.c.; Ontario, 40.5 p.c.; the Prairies, 25.0 p.c.; and British Columbia, 10.9 p.c.

31.—Production, Utilization and Value of Farm Eggs, by Province, 1963 and 1964

Province	1963				1964			
	Average Number of Layers	Average Production per 100 Layers	Net Eggs Laid ¹	Total Value (Sold and Used)	Average Number of Layers	Average Production per 100 Layers	Net Eggs Laid ¹	Total Value (Sold and Used)
	'000	No.	'000 doz.	\$'000	'000	No.	'000 doz.	\$'000
Prince Edward Island.....	269	18,768	4,158	1,511	257	19,289	4,079	1,357
Nova Scotia.....	1,122	20,810	19,305	7,801	1,027	21,615	18,278	6,217
New Brunswick.....	578	19,498	9,294	4,388	586	20,114	9,713	4,090
Quebec.....	4,079	19,631	66,182	28,522	4,378	19,790	71,520	26,684
Ontario.....	9,897	20,789	170,032	67,428	10,220	20,928	177,023	58,779
Manitoba.....	2,357	19,296	37,560	12,125	2,658	19,570	42,878	11,564
Saskatchewan.....	1,987	17,880	29,142	8,821	1,939	17,607	28,089	7,746
Alberta.....	2,419	18,595	36,938	12,100	2,589	18,170	38,574	10,748
British Columbia.....	2,680	20,432	45,309	17,693	2,745	21,025	47,752	15,934
Totals.....	25,388	19,943	417,920	160,359	26,399	20,095	437,906	143,119

¹ Total laid less loss.

Wool.—Canada's wool requirements are met largely by imports which amounted to 62,970,000 lb. (greasy basis) in 1964 compared with 59,805,000 lb. in 1963. Exports amounted to 3,223,000 lb. in 1964 and 4,661,000 lb. in 1963. The apparent domestic consumption of wool shown in Table 32 is determined on the basis of production, exports and imports but does not take into consideration changes in stocks for which the data are not available. Differences in wool utilization from year to year are therefore probably less marked than is indicated by these figures.

32.—Production and Apparent Consumption of Wool, 1960-64

Item	1960	1961	1962	1963	1964
Shorn Wool Produced—					
Yield per fleece..... lb.	7.7	7.8	8.0	7.9	8.0
Total yield..... '000 lb.	6,370	6,169	5,808	5,259	5,065
Price per pound ¹ cts.	47.9	50.2	49.3	51.9	51.1
Total value..... \$'000	3,052	3,094	2,862	2,728	2,586
Pulled Wool Produced..... '000 lb.	1,387	1,287	1,361	1,553	1,281
Totals, Wool Production..... '000 lb.	7,757	7,456	7,169	6,812	6,346
Apparent wool consumption²..... '000 lb.	53,581	56,819	57,505	61,956	66,093

¹ Includes Agricultural Stabilization Act payments of 23 cents per lb. in 1960, 22 cents per lb. in 1961, 18 cents per lb. in 1962, 14.3 cents per lb. in 1963 and 12.3 cents per lb. in 1964 on qualifying graded wool.

² See text above.

Honey.—As shown in Table 33, honey production was 13 p.c. less in 1964 than in 1963. The 1963 crop, however, was the second largest on record after the 45,100,000 lb. produced in 1948. The number of colonies operated was somewhat greater in 1964 than in 1963 but a lower average yield per colony resulted in the decreased output.

Honey is produced commercially in all provinces except Newfoundland and yields tend to vary considerably from year to year. In 1964, Ontario was the largest producer, surpassing Alberta which had the highest production in 1963. Honey bees are kept in some of the fruit growing districts for purposes of pollination and are also used for the pollination of certain seed crops.

To facilitate storage, shipment and uniformity of quality, large quantities of Canadian honey are pasteurized. Beekeepers' marketing co-operatives are active in several provinces. In 1964, 4,915,000 lb. of honey valued at \$1,215,000 were exported from Canada, the main countries of destination being Britain, West Germany, Belgium and Luxembourg, and Norway.

33.—Honey and Beeswax Production 1962-64, with Average for 1957-61

Item	Av. 1957-61	1962	1963*	1964
Honey—				
Total production..... '000 lb.	31,674	30,713	42,142	36,662
Average production per colony..... lb.	96	90	117	96
Total value..... \$'000	5,400	5,128	7,558	6,656
Beeswax—				
Production..... '000 lb.	468	454	624	545
Value..... \$'000	221	209	282	253
Total Value, Honey and Beeswax..... \$'000	5,621	5,337	7,820	6,909
Beekeepers..... No.	13,320	10,370	10,660	10,760
Bee colonies..... "	330,670	340,470	360,060	382,240

34.—Honey Production, by Province, 1962-64, with Average for 1957-61

Province	Av. 1957-61	1962	1963	1964
	'000 lb.	'000 lb.	'000 lb.	'000 lb.
Prince Edward Island	62	29	64	54
Nova Scotia.....	182	148	213	197
New Brunswick.....	85	62	125	97
Quebec.....	3,068	3,140	4,125	2,592
Ontario.....	9,301	11,718	11,000	11,000
Manitoba.....	5,892	4,630	7,285	5,822
Saskatchewan.....	4,038	2,864	6,100	5,500
Alberta.....	7,261	6,867	11,600	9,800
British Columbia.....	1,785	1,255	1,630	1,600
Totals.....	31,674	30,713	42,142	36,662

Sugar Beets and Beet Sugar.—Sugar beets are grown commercially in Quebec, Ontario, Manitoba and Alberta and beet sugar factories are located in these provinces. In Quebec, commercial production is centred in the St. Hilaire area of the Eastern Townships; in Ontario, production is confined to the southwestern section of the province. Alberta produces the largest crop and in that province sugar beets are grown under irrigation.

35.—Acreage, Yield and Value of Sugar Beets and Quantity and Value of Beet Sugar Shipments, 1958-64

Year	Sugar Beets					Beet Sugar (All Types)	
	Har- vested Area	Yield per Acre	Total Yield	Average Price per Ton	Total Value	Shipments	Value
	acres	tons	tons	\$	\$'000	'000 lb.	\$'000
1958.....	97,800	13.55	1,324,870	14.47	19,177	300,296	27,213
1959.....	90,453	13.70	1,239,518	12.78	15,842	307,380	23,155
1960.....	86,128	12.76	1,098,673	14.36	15,778	298,111	21,185
1961.....	84,927	13.02	1,105,708	13.13	14,515	283,675	21,535
1962.....	84,677	13.06	1,105,704	19.00	21,004	284,236	20,791
1963.....	95,223	13.50	1,285,747	18.34	23,586	290,288	33,198
1964.....	101,312	12.81	1,297,912	..	..	..	..

Maple Sugar and Maple Syrup.—Maple syrup is produced in the Provinces of Nova Scotia, New Brunswick, Quebec and Ontario. The bulk of the crop comes from the Eastern Townships of Quebec, a district famous both in Canada and in the United States as the centre of the maple products industry. Virtually all of the maple products exported are sent to the United States with the larger proportion moving as sugar, although substantial quantities of syrup are also shipped. Much of the syrup sold in Canada is marketed in one-gallon cans direct to the consumer from the producer but a considerable amount of both sugar and syrup is sold each year to processing firms.

**36.—Production of Maple Sugar and Maple Syrup, by Province, 1962-63, with
Averages for 1957-61**

Province and Year	Maple Sugar		Maple Syrup			Total Value, Sugar and Syrup
	Quantity	Value	Quantity	Average Price per gal.	Value	
	lb.	\$	gal.	\$	\$	\$
Nova Scotia—						
Av. 1957-61.....	15,000	10,000	5,000	5.20	26,000	36,000
1962.....	7,000	4,000	3,000	5.33	16,000	20,000
1963.....	10,900	7,000	3,600	5.56	20,000	27,000
1964.....	1,500	1,000	1,400	5.71	8,000	9,000
New Brunswick—						
Av. 1957-61.....	63,000	38,000	13,000	5.08	66,000	104,000
1962.....	32,000	19,000	6,000	5.50	33,000	52,000
1963.....	32,000	21,000	7,800	5.38 ^r	42,000	63,000
1964.....	11,150	8,000	4,600	5.87	27,000	35,000
Quebec—						
Av. 1957-61.....	526,000	235,000	2,201,000	3.53	7,765,000	8,000,000
1962.....	695,000	341,000	2,426,000	3.69	8,952,000	9,293,000
1963.....	669,000	261,000 ^r	2,488,000	3.94	9,803,000 ^r	10,164,000 ^r
1964.....	457,000	256,000	1,561,000	4.13	6,447,000	6,703,000
Ontario—						
Av. 1957-61.....	18,000	11,000	283,000	4.93	1,395,000	1,406,000
1962.....	16,000	10,000	311,000	5.08	1,579,000	1,589,000
1963.....	7,800	6,000	219,000	5.21	1,141,000	1,147,000
1964.....	7,960	6,000	155,000	5.40	837,000	843,000
Totals—						
Av. 1957-61.....	622,000	294,000	2,502,000	3.70	9,252,000	9,546,000
1962.....	750,000	374,000	2,746,000	3.85	10,580,000	10,951,000
1963.....	219,700	395,000 ^r	2,718,400	4.05	11,006,000 ^r	11,401,000 ^r
1964.....	477,610	271,000	1,722,000	4.25	7,319,000	7,590,000

Nursery Stock.—Statistics concerning the nursery industry in Canada for recent years are presented in Tables 37 and 38. All nurseries were asked to report quantities sold of stock propagated during these years; stock purchased from other nurseries in Canada was excluded to prevent duplication. A total of 217 nurseries reported shipments in 1963. Wholesale value of nursery stock shipments of fruit trees, etc., amounted to \$581,059 in 1963 compared with \$553,725 in 1962, and of ornamental species to \$4,225,891 in 1963 compared with \$4,165,396 in the previous year.

37.—Nursery Stock Shipments (Domestic), by Type, 1959-63

Classification	1959	1960	1961	1962	1963
	No.	No.	No.	No.	No.
Fruit Trees, etc.—					
Apple species.....	436,845	300,729	378,093	315,528	259,736
Tender tree-fruit species.....	314,265	256,185	264,197	235,468	304,880
Small fruit species.....	4,446,224	5,361,022 ^r	5,502,671	4,753,971	4,801,390
Other species.....	371,547	219,527	338,375	239,040	239,237
Ornamental Species—					
Rose bushes.....	592,113	2,001,121	1,444,440 ^r	1,399,399 ^r	1,566,679
Other ornamental shrubs and deciduous trees.....	4,113,190	4,908,373	4,343,288	4,595,962	3,998,417
Evergreen trees.....	1,631,726	1,292,029	1,759,369	1,377,015	1,488,811
Ornamental climbers.....	25,031	44,413	213,629	58,387	160,289
Hybrid teas on standards (roses)....	..	6,167	29,009	6,124	25,394

33.—Acreage of Nursery Stock, by Province, 1951-63

Province	1961		1962 [*]		1963	
	Fruit Species	Ornamental Species	Fruit Species	Ornamental Species	Fruit Species	Ornamental Species
	acres	acres	acres	acres	acres	acres
Quebec ¹	42	340	34	264	24	322
Ontario.....	514	3,299	364	2,583	2,311	2,526
Prairie Provinces.....	93	550	95	508	77	545
British Columbia.....	89	161	108	218	70	1,531
Totals.....	738	4,350	601	3,573	2,482	4,924

¹ Includes the Maritime Provinces for which insufficient information was reported.

Greenhouse Operations.—Annual surveys have been made of greenhouse operations for 1955 and subsequent years. Data are reported by firms and individuals returning questionnaires, with the exception of that for cucumbers and tomatoes grown in Essex County of Ontario (the most important producing area), which is based on information obtained from the local co-operative marketing agency. Only greenhouses used for the production of items for sale are included in the survey.

39.—Greenhouse Operations, by Province, 1963, with Totals for 1959-63

Province	Firms Reporting	Area			Value of Sales (Wholesale)			
		Under Glass	Under Cloth	Open Field	Cut Flowers and Potted Plants	Vegetables	Plants—Rooted Cuttings, etc., for Growing On	Total Sales
	No.	sq. ft.	sq. ft.	acres	\$	\$	\$	\$
Newfoundland... Prince Edward Island..... Nova Scotia..... New Brunswick..... Quebec..... Ontario..... Manitoba..... Saskatchewan..... Alberta..... British Columbia.....	6 39 23 112 611 29 13 45 317	23,920 678,443 203,837 1,209,583 15,502,745 222,899 218,600 1,694,588 3,980,803 ²	— 5,300 9,880 29,545 350,330 6,300 1,700 3,600 31,016	1.8 4.5 9.4 67.0 392.5 6.7 7.5 34.5 283.9	42,328 710,790 338,418 1,804,500 10,318,734 166,677 213,593 1,612,494 2,743,538	1,295 182,051 26,682 42,889 5,260,278 2 15,307 205,402 1,111,416	9,885 63,206 26,682 409,951 2,204,138 103,287 77,715 247,482 352,068	53,508 956,047 365,100 2,257,340 17,733,150 269,964 308,615 2,005,378 4,207,022 ³
Totals, 1963.....	1,195	23,735,418²	437,671	807.8	17,951,072	6,818,638	3,494,414	28,264,124³
1962.....	976	19,734,129	408,970	906.9	16,391,108	5,059,615	2,767,547	24,218,270
1961.....	1,074	18,474,888	435,912	3,160.0	15,668,154	4,389,100	2,341,156	22,398,410
1960.....	1,045	15,672,066	453,718	2,244.6	14,899,047	4,015,284	2,502,170	21,416,501
1959.....	1,191	15,778,177	590,372	1,928.4	16,948,269	3,421,308	2,191,411	22,560,988

¹ Included in Nova Scotia.

² Included in Saskatchewan.

³ Total area of glass and value of vegetable sales for British Columbia not comparable with data for previous years.

Subsection 8.—Prices of Agricultural Products

The monthly index of farm prices of agricultural products was designed to measure changes occurring in the average prices farmers receive at the farm from the sale of farm products. In comparing current index numbers with those before August 1964, certain points should be considered. Western grain prices used in the construction of the index before Aug. 1, 1964 are final prices for all grains. For the remaining months of 1964, the western grain prices used in the index are initial prices. Subsequent participation payments made on the 1964 crops will be added to the prices currently used and the index revised upward accordingly.

40.—Average Index Numbers of Farm Prices of Agricultural Products, by Province, 1960-64, and Monthly Indexes for 1963 and 1964

(1935-39 = 100)

NOTE.—A description of this index, its coverage and the methods used will be found in DBS *Quarterly Bulletin of Agricultural Statistics* (Catalogue No. 21-003) for October-December 1946. Monthly prices of grain and of livestock are carried in the current issues of the same publication.

Year and Month	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total
Averages—										
1960.....	265.2	237.8	264.7	273.7	264.4	241.1	224.6	238.9	271.4	250.0
1961.....	198.3	225.2	220.4	274.3	265.3	261.9	251.3	265.8	276.1	261.2
1962.....	196.7	231.0	215.0	275.9	273.8	278.3	265.2	283.2	284.6	272.0
1963.....	213.2	232.8	222.2	274.6	273.4	268.1	258.1	277.6	278.2	268.4
1964.....	241.7	231.6	244.8	277.8	269.6	248.2	237.4	256.9	271.3	258.0
1963										
January.....	203.4	238.2	222.6	277.0	277.4	269.4	258.3	276.6	278.5	269.8
February.....	230.3	242.6	235.0	279.5	273.9	269.4	255.7	274.4	276.4	268.7
March.....	229.3	238.8	236.3	277.8	269.0	266.4	254.5	271.0	277.5	265.8
April.....	212.5	233.2	217.4	268.4	265.6	264.9	252.5	270.2	281.0	262.5
May.....	219.2	232.9	216.1	270.0	268.8	265.9	253.6	273.5	278.3	264.5
June.....	249.4	241.4	228.4	275.6	276.1	269.5	256.2	277.9	282.8	269.9
July.....	232.8	244.1	232.1	278.8	279.3	270.7	257.9	281.1	289.0	272.6
August.....	219.0	238.2	231.0	277.0	276.1	274.6	263.8	286.1	288.7	273.6
September.....	205.1	225.3	217.1	276.2	278.5	272.7	265.0	288.0	273.3	273.3
October.....	176.7	224.6	207.9	273.4	273.5	267.8	262.5	280.4	271.7	268.5
November.....	186.3	216.9	209.5	269.9	272.0	263.5	259.4	277.6	271.1	266.0
December.....	193.9	217.5	212.4	271.6	271.2	262.0	258.2	275.0	270.0	265.2
1964										
January.....	201.8	220.6	214.6	275.8	266.4	261.3	258.5	273.8	267.9	264.1
February.....	187.9	218.3	211.7	275.1	269.8	263.3	259.0	275.5	269.4	265.5
March.....	181.8	219.8	210.5	273.9	268.5	266.4	260.4	277.7	271.2	266.0
April.....	212.5	223.2	223.6	271.3	267.9	265.0	260.5	277.9	273.9	266.2
May.....	265.7	230.8	252.5	271.7	269.4	264.7	260.0	278.1	272.9	267.9
June.....	357.9	248.3	329.9	283.4	274.3	266.0	259.5	280.1	273.2	274.1
July.....	320.2	250.2	296.3	281.8	272.7	263.1	259.8	279.6	276.9	272.2
August.....	277.7	238.3	241.7	282.9	271.9	228.9	212.5	235.9	274.5	248.9
September.....	192.6	227.9	218.8	279.1	272.0	230.2	210.2	233.7	268.7	245.9
October.....	215.7	232.7	226.2	277.8	265.4	223.9	204.6	225.7	268.1	241.0
November.....	226.2	231.8	241.2	278.8	267.8	223.4	201.8	221.7	269.4	240.9
December.....	260.4	237.2	270.3	282.4	269.7	222.0	202.0	222.6	269.9	243.1

41.—Average Cash Prices per Bushel of Major Canadian Grains, Crop Years Ended July 31, 1955-64

(Basis, in store Fort William-Port Arthur)

Year Ended July 31—	Averages in Cents and Eighths per Bushel				
	Wheat, ^{1,2} No. 1 N.	Oats, ¹ No. 2 C.W.	Barley, ¹ No. 3 C.W. —6 Row	Rye, ³ No. 2 C.W.	Flaxseed, ³ No. 1 C.W.
	cts.	cts.	cts.	cts.	cts.
1955.....	173	90/4	122/4	112/2	301/1
1956.....	174	83/5	114/3	110/1	360/1
1957.....	168/1	80/6	116	119/7	298/4
1958.....	162/3	76/3	111	106	303
1959.....	166/2	77/6	109/7	108	302
1960.....	165/7	82/4	108/1	109/7	334/2
1961.....	167/4	81/2	107/5	105	361/4
1962.....	189/7	96/1	143/7	136/6	368/2
1963.....	196/1	81/6	130/6	137/2	335
1964.....	203/3	78/5	123/4	146/7	319/6

¹ Canadian Wheat Board daily fixed prices.² International Wheat Agreement and domestic sales.³ Winnipeg Grain Exchange daily closing cash quotations.**42.—Yearly Average Prices per 100 lb. of Canadian Livestock at Principal Markets, 1961-64**

Item	Toronto				Montreal			
	1961	1962	1963	1964	1961	1962	1963	1964
	\$	\$	\$	\$	\$	\$	\$	\$
Steers, good.....	22.75	25.75	23.65	22.70	22.80	26.15	24.10	22.40
Steers, medium.....	21.07	23.75	21.69	20.60	21.63	23.84	22.42	20.55
Steers, common.....	17.59	19.61	17.84	17.08	18.72	19.72	18.94	17.17
Heifers, good.....	21.49	23.11	22.32	20.53	21.02	20.98	20.40	20.25
Heifers, medium.....	19.83	21.31	20.26	18.61	19.28	19.23	18.79	18.50
Calves, fed, good.....	23.17	24.45	23.14	21.57	21.10	21.36	22.81	1
Cows, good.....	16.25	17.85	17.40	16.00	16.55	17.80	18.05	16.60
Cows, medium.....	15.05	16.20	15.98	14.46	15.40	16.39	16.05	14.62
Bulls, good.....	19.12	19.60	19.45	18.29	19.14	19.75	20.05	18.71
Feeder steers, good.....	22.70	24.90	25.30	22.80	2	2	2	2
Feeder steers, common.....	18.47	21.94	20.98	18.44	2	2	2	2
Calves, veal, good and choice.....	30.80	31.85	30.70	29.85	28.05	29.50	28.05	27.75
Calves, veal, common and medium.....	22.93	24.19	23.93	22.46	22.29	23.00	22.44	20.82
Hogs, Grade B, dressed.....	27.30	28.60	26.80	26.30	27.65	28.15	26.40	25.80
Lambs, good.....	20.80	22.00	23.30	24.30	20.25	20.25	21.25	23.10
Lambs, common.....	16.35	18.21	19.11	20.29	17.74	17.24	18.45	17.05
Sheep, good.....	9.02	9.44	9.10	8.80	9.66	8.82	9.50	8.87
	Winnipeg				Edmonton			
	1961	1962	1963	1964	1961	1962	1963	1964
	\$	\$	\$	\$	\$	\$	\$	\$
Steers, good.....	21.40	24.85	23.00	21.85	20.70	23.70	21.85	20.70
Steers, medium.....	20.24	22.88	21.40	19.92	19.62	22.11	20.48	19.14
Steers, common.....	18.11	18.58	18.81	17.52	17.43	19.36	18.32	16.76
Heifers, good.....	19.85	22.75	21.64	19.74	18.80	21.94	20.21	18.43
Heifers, medium.....	18.26	20.77	19.49	17.65	17.69	19.80	18.84	16.87
Calves, fed, good.....	20.04	23.28	21.87	20.24	19.23	21.62	20.67	18.95
Cows, good.....	15.50	17.20	17.10	15.40	14.65	15.65	15.85	14.25
Cows, medium.....	14.52	15.88	15.92	14.33	13.49	14.39	14.51	13.02
Bulls, good.....	17.46	18.12	17.70	16.65	16.44	17.10	16.50	15.15
Feeder steers, good.....	21.45	24.40	23.20	20.85	20.75	23.45	22.65	20.40
Feeder steers, common.....	19.05	21.62	19.90	17.20	17.85	20.01	19.47	16.66
Stock cows and heifers, good.....	17.78	20.17	19.63	16.52	15.94	18.49	18.54	16.40
Stock cows and heifers, common.....	14.67	16.25	16.13	13.86	13.53	14.65	14.66	13.41
Calves, veal, good and choice.....	30.35	33.35	32.45	30.70	25.35	27.15	26.90	23.95
Calves, veal, common and medium.....	24.23	26.69	25.36	23.06	20.53	22.27	21.30	18.35
Hogs, Grade B, dressed.....	24.85	25.65	24.80	23.55	23.80	25.40	25.40	22.85
Lambs, good.....	17.00	17.95	18.95	19.80	16.55	17.00	17.80	18.10
Lambs, common.....	15.03	15.44	16.65	17.61	15.28	15.48	15.88	16.
Sheep, good.....	3.78	4.49	4.65	4.64	9.44	7.52	5.70	5.

¹ Not sold in sufficient quantity to establish a reliable price.² No sales reported.

Subsection 9.—Food Consumption

Food consumption figures represent available supplies, including production and imports, adjusted for change of stocks, exports, marketing losses and industrial uses. All calculations are made at the retail stage of distribution, except for meats for which the figures are worked out at the wholesale stage. The amount of food actually eaten would be somewhat lower than indicated because of losses and waste occurring after the products reach the hands of the consumer. It should also be pointed out that there are minor inaccuracies in certain of the figures since statistics of storage stocks in the hands of retailers and consumers are not available.

All basic foods are classified under 12 main commodity groups. The total for each group is computed using a common denominator for the group, for example: milk solids (dry weight) in the dairy products group; fat content for fats and oils; and fresh equivalent for fruits. All foods are included in their basic form, that is, as flour, fat, sugar, etc., rather than in more highly manufactured forms.

The series in Table 43 represents the official estimates of yearly supplies of food moving into consumption, expressed in pounds per capita, for the years 1958-62 as an average for comparison with the years 1962 and 1963.

43.—Per Capita Supplies of Food Moving into Consumption 1962 and 1963, with Average for 1958-62

Kinds of Food and Weight Base	Pounds per Capita per Annum			Percentages of 1958-62 Average	
	Average 1958-62	1962*	1963	1962*	1963
Cereals.....Retail wt.	153.8	150.5	157.2	97.9	102.2
Flour (including rye flour).....	136.3	133.5	139.0	97.9	102.0
Oatmeal and rolled oats.....	4.9	4.8	5.0	98.0	102.0
Pot and pearl barley.....	0.2	0.2	0.2	100.0	100.0
Corn meal and flour.....	1.5	1.7	2.2	113.3	146.7
Buckwheat flour.....	0.08	0.04	0.05	50.0	62.5
Rice.....	4.0	3.4	4.0	85.0	100.0
Breakfast food.....	6.8	6.9	6.8	101.5	100.0
Potatoes.....Retail wt.	138.0	142.6	128.7	103.3	93.3
Potatoes, white.....	137.5	142.2	128.2	103.4	93.2
Potatoes, sweet.....	0.5	0.4	0.5	80.0	100.0
Sugars and Syrups.....Sugar content	105.8	108.5	102.5	102.6	96.9
Sugar.....Refined wt.	98.1	100.4	95.7	102.3	97.6
Maple sugar.....Retail wt.	0.9	0.9	0.7	100.0	77.8
Honey.....	4	1.7	1.9	—	—
Other.....	10.6	9.2	7.4	86.8	69.8
Pulses and Nuts.....Retail wt.	9.8	9.2	9.6	93.9	98.0
Dry beans.....	2.9	2.0	2.4	69.0	82.8
Dry peas.....	1.3	1.3	1.6	100.0	123.1
Peanuts.....Shelled wt.	3.1	3.5	3.0	112.9	96.8
Tree nuts.....	1.2	1.1	1.1	91.7	91.7
Cocoa.....Green beans	3.0	2.8	3.1	93.3	103.3
Fruit.....Fresh equiv.	237.0	229.1	224.6	96.7	94.8
Tomatoes and Citrus Fruit—					
Tomatoes, fresh.....Retail wt.	17.5	16.8	16.2	96.0	92.6
Tomato products.....Net wt. canned	17.2	18.7	19.4	108.7	112.8
Citrus fruit, fresh.....Retail wt.	30.1	25.3	20.7	84.1	68.8
Citrus fruit juice.....Net wt. canned	15.4	14.3	13.3	92.9	86.4
Other Fruit—					
Fresh.....Retail wt.	66.4	64.3	64.3	96.8	96.8
Canned.....Net wt. canned	16.1	15.6	15.8	96.9	98.1
Dried.....Processed wt.	5.3	4.2	4.3	79.2	81.1
Juice.....Net wt. canned	6.0	7.8	8.8	130.0	146.7
Frozen.....Retail wt.	2.4	2.7	2.6	112.5	108.3

For footnotes, see end of table.

43.—Per Capita Supplies of Food Moving into Consumption 1962 and 1963, with Average for 1958-62—concluded

Kinds of Food and Weight Base	Pounds per Capita per Annum			Percentages of 1958-62 Average	
	Average 1958-62	1962*	1963	1962*	1963
Vegetables..... Fresh equiv.	110.6	114.9	117.3	103.9	106.1
Fresh—					
Cabbage and greens..... Retail wt.	19.6	18.5	19.6	94.4	100.0
Carrots..... " "	15.6	16.0	15.1	102.6	96.8
Legumes..... " "	2.2	2.5	3.1	113.6	140.9
Other..... " "	39.8	38.4	42.1	96.5	105.8
Canned..... Net wt. canned	17.8	18.9	17.2	106.2	96.6
Frozen..... Retail wt.	2.9	3.0	3.9	103.4	134.5
Oils and Fats..... Fat content	44.1	45.1	45.5	102.3	103.2
Margarine..... Retail wt.	9.3	9.9	9.2	106.5	98.9
Lard..... " "	8.2	8.0	7.6	97.6	92.7
Shortening..... " "	9.4	9.6	9.9	102.1	105.3
Salad and cooking oil..... " "	4.0	5.0	5.0	125.0	125.0
Butter..... " "	17.7	17.9	19.1	101.1	107.9
Eggs..... Fresh equiv.	35.5	33.8	32.2	95.2	90.7
Meat..... Carcass wt.	140.8	137.8	143.5	97.9	101.9
Pork..... " "	53.0	49.8	50.7	94.0	95.7
Beef..... " "	67.5	69.3	73.8	102.7	109.3
Veal..... " "	7.4	6.5	6.6	87.8	89.2
Mutton and lamb..... " "	3.3	3.8	4.0	115.2	121.2
Offal..... Edible wt.	4.7	4.2	4.0	89.4	85.1
Canned meat..... Net wt. canned	5.6	5.3	5.2	94.6	92.9
Poultry and Fish..... Edible wt.	34.7	35.4	36.5	102.0	105.2
Hens and chickens ¹ Eviscerated wt.	22.0	22.9	23.8	104.1	108.2
Other poultry..... " "	7.6	8.1	8.8	106.6	115.8
Fish and shellfish, fresh and frozen..... Edible wt.	7.6	7.6	7.6	100.0	100.0
Fish, cured (smoked, salted, pickled)..... " "	1.8	1.7	1.7	94.4	94.4
Fish and shellfish, canned..... Net wt. canned	3.5	3.1	3.1	88.6	88.6
Milk and Cheese..... Milk solids	64.9	60.2	61.1	92.8	94.1
Cheddar cheese ² Retail wt.	6.0	6.6	6.5	110.0	108.3
Other cheese..... " "	1.3	1.5	1.6	115.4	123.1
Cottage cheese..... " "	1.3	1.4	1.5	107.7	115.4
Evaporated whole milk..... " "	17.4	17.7	17.2	101.7	98.8
Condensed whole milk..... " "	0.8	0.9	1.0	112.5	125.0
Whole milk powder and cream powder ⁷ " "	0.2	0.3	0.4	150.0	200.0
Skim milk powder..... " "	7.2	7.2	8.1	100.0	112.5
Milk in ice cream..... " "	35.8	28.9	26.4	80.7	73.7
Powdered buttermilk..... " "	0.5	0.6	0.5	120.0	100.0
Fluid whole milk ⁸ " "	378.9	326.4	324.0	86.1	85.5
Miscellaneous milk products ⁹ " "	—	0.9	1.2	—	—
Beverages..... Primary distribution wt.	11.6	12.0	12.3	103.4	106.0
Tea..... " "	2.5	2.3	2.5	92.0	100.0
Coffee..... Green beans	9.1	9.7	9.8	106.6	107.7

¹ Fluctuations in apparent per capita flour consumption are caused partly by lack of complete data on flour inventories in all positions. ² Honey included with "other" prior to 1960. ³ Includes soybean flour. ⁴ Tomatoes canned, tomato juice, tomato pulp, paste and purée. ⁵ Exclusive of Newfoundland. ⁶ Includes process cheese. ⁷ Cream powder included in whole milk powder for 1962 and 1963. ⁸ Includes cream expressed as milk. ⁹ Includes evaporated and condensed skim milk, condensed buttermilk, sugar of milk, formula skim milk products and concentrated liquid skim milk.

Disappearance of Meats and Lard.—Production of meats from slaughter in Canada, total supply, distribution and per capita disappearance of meats and lard are shown in Table 44. All estimates are on a carcass-weight basis except canned meats, which are in terms of product.

44.—Supply, Distribution and Disappearance of Meats and Lard, 1959-64

Item	1959	1960	1961	1962*	1963*	1964
Beef—						
Animals slaughtered in Canada..... '000	2,261.3	2,471.3	2,510.9	2,502.0	2,655.6	2,933.0
Estimated dressed weight..... '000 lb.	1,153,037	1,266,280	1,302,641	1,296,351	1,409,840	1,555,442
On hand, Jan. 1..... "	31,417	27,958	29,208	33,350	33,719	41,085
Imports for consumption..... "	36,182	31,054	30,990	37,555	37,617	26,616
Total Supply..... "	1,220,636	1,325,292	1,362,839	1,367,256	1,481,176	1,623,143
Exports..... "	29,959	25,942	37,536	27,656	25,564	42,770
Used for canning..... "	16,651	20,103	20,657	19,086	18,251	19,813
On hand, Dec. 31..... "	27,958	29,208	33,350	33,719	41,085	44,541
DOMESTIC DISAPPEARANCE..... '000 lb.	1,146,068	1,250,039	1,271,296	1,286,795	1,396,276	1,516,019
PER CAPITA DISAPPEARANCE..... lb.	65.6	70.0	69.7	69.2	73.8	78.7
Veal—						
Animals slaughtered in Canada..... '000	1,093.5	1,081.7	1,048.8	991.4	1,068.5	1,117.2
Estimated dressed weight..... '000 lb.	120,505	125,155	123,754	121,641	129,741	137,968
On hand, Jan. 1..... "	4,608	3,925	4,970	3,652	3,867	5,094
Imports for consumption..... "	1	1	1	1	1	1
Total Supply..... "	125,113	129,080	128,724	125,293	133,608	143,062
Exports..... "	1	1	1	1	1	1
Used for canning..... "	977	959	1,321	1,198	1,419	1,424
On hand, Dec. 31..... "	3,925	4,970	3,652	3,867	5,094	5,942
DOMESTIC DISAPPEARANCE..... '000 lb.	120,211	123,151	123,751	120,228	127,095	135,696
PER CAPITA DISAPPEARANCE..... lb.	6.9	6.9	6.8	6.5	6.7	7.0
Mutton and Lamb—						
Animals slaughtered in Canada..... '000	725.7	737.4	816.0	763.5	698.1	653.8
Estimated dressed weight..... '000 lb.	31,784	31,561	35,086	32,625	30,509	28,825
On hand, Jan. 1..... "	9,490	6,080	7,816	9,932	7,054	9,298
Imports for consumption..... "	20,071	23,532	33,433	37,587	47,856	37,654
Total Supply..... "	61,345	61,173	76,335	80,144	85,419	75,777
Exports..... "	749	109	173	556	679	757
Used for canning..... "	3,087	810	1,185	1,232	1,108	1,227
On hand, Dec. 31..... "	6,080	7,816	9,932	7,054	9,298	8,745
DOMESTIC DISAPPEARANCE..... '000 lb.	51,429	52,438	65,045	71,302	74,334	65,048
PER CAPITA DISAPPEARANCE..... lb.	2.9	2.9	3.6	3.8	3.9	3.4
Pork—						
Animals slaughtered in Canada..... '000	9,661.8	7,804.4	7,522.1	7,648.2	7,601.0	8,301.0
Estimated dressed weight ² '000 lb.	1,237,682	988,035	966,595	978,185	978,295	1,060,651
On hand, Jan. 1..... "	45,310	56,549	21,139	24,648	18,357	25,236
Imports for consumption..... "	1,416	17,706	41,859	35,602	89,465	53,666
Total Supply..... "	1,284,408	1,062,290	1,029,593	1,038,435	1,086,117	1,139,553
Exports..... "	70,042	67,691	52,394	47,922	47,420	53,959
Used for canning..... "	167,145	33,602	42,255	46,764	54,663	56,937
On hand, Dec. 31..... "	56,549	21,139	24,648	18,357	25,236	27,739
DOMESTIC DISAPPEARANCE..... '000 lb.	990,672	939,858	910,296	925,392	958,798	1,000,918
PER CAPITA DISAPPEARANCE..... lb.	56.7	52.6	49.9	49.8	50.7	51.9
Canned Meats—						
Estimated production..... '000 lb.	175,738	66,681	84,928	88,893	92,263	98,653
On hand, Jan. 1..... "	13,833	127,274	48,473	42,775	29,478	17,560
Imports for consumption..... "	19,585	12,487	18,105	12,405	16,407	13,799
Total Supply..... "	209,156	206,442	151,506	144,073	138,148	130,012

For footnotes, see end of table.

44.—Supply, Distribution and Disappearance of Meats and Lard, 1959-64—concluded

Item	1959	1960	1961	1962 *	1963 *	1964
Canned Meats—concluded						
Exports..... '000 lb.	6,843	24,357	9,623	16,487	21,991	8,324
On hand, Dec. 31..... "	127,274	48,473	42,775	29,478	17,560	15,880
DOMESTIC DISAPPEARANCE..... '000 lb.	75,039	133,612	99,108	98,108	98,597	105,808
PER CAPITA DISAPPEARANCE..... lb.	4.3	7.5	5.4	5.3	5.2	5.5
Offal—						
Estimated production..... '000 lb.	100,788	95,849	95,339	95,475	98,577	108,088
On hand, Jan. 1..... "	4,946	5,251	5,042	5,906	5,001	6,217
Imports for consumption..... "	2,311	5,063	3,426	3,997	4,743	3,207
Total Supply..... "	108,045	106,163	103,857	105,378	108,321	117,512
Exports..... "	15,397	14,434	14,146	20,410	23,911	34,013
Used for canning..... "	1,628	1,673	2,059	1,818	2,057	2,034
On hand, Dec. 31..... "	5,251	5,042	5,906	5,001	6,217	6,786
DOMESTIC DISAPPEARANCE..... '000 lb.	85,769	85,014	81,746	78,149	76,136	74,679
PER CAPITA DISAPPEARANCE..... lb.	4.9	4.8	4.5	4.2	4.0	3.7
Lard—³						
Estimated production..... '000 lb.	181,680	142,193	130,191	123,513	125,407	137,740
On hand, Jan. 1..... "	8,608	7,663	5,949	6,921	6,263	5,848
Imports for consumption..... "	2,736	20,903	25,145	24,784	17,073	16,001
Total Supply..... "	193,024	170,759	161,285	155,218	148,743	159,589
Exports..... "	9,217	1,667	912	32	23	34
On hand, Dec. 31..... "	7,663	5,949	6,921	6,263	5,848	6,925
DOMESTIC DISAPPEARANCE..... '000 lb.	176,144	163,143	153,452	148,923	142,872	152,630
PER CAPITA DISAPPEARANCE..... lb.	10.1	9.1	8.4	8.0	7.5	7.9

¹ Quantity small; included with beef. ² Trimmed of larding fat and excluding offal ³ Includes commercial lard production and estimated lard equivalent of renderable pork fat available from all uninspected slaughter.

Section 4.—Agricultural Statistics of the Census*

This Section presents a limited amount of information from the 1961 Census of Agriculture. Details are contained in Vol. V of the 1961 *Census of Canada* and in a number of special and advance census reports. A list of these publications and their prices is available from the DBS on request.

Number of Farms.—There were 16 p.c. fewer farms in Canada in 1961 than in 1956, the year of the immediately preceding census. The number dropped from 575,015 in the earlier year to 480,903 in the later. However, part of this decrease was attributable to a change in the census definition of a farm. In the 1956 (and 1951) Census, a farm was defined as a holding on which agricultural operations were carried out and which was (a) three acres or more in size, or (b) from one to three acres in size and with agricultural production during the previous year valued at \$250 or more. In the 1961 Census, a farm was defined as a holding of one acre or more with the sales of agricultural products during the previous year valued at \$50 or more. On the basis of the 1956 definition, the decrease in the number of farms was from 575,015 to 521,634 in 1961, or about 9 p.c.

* Reference is made to the 1963-64 Year Book for summary figures relating to the economic classification of farms (pp. 478-480) and tenure and age of farm operators (pp. 481-482).

45.—Number of Farms, by Province, Censuses of 1956 and 1961

Province or Territory	1956 (1956 Definition) ¹	1961 (1961 Definition) ¹	P.C. Change 1956-61	1961 (1956 Definition) ¹	P.C. Change 1956-61
	No.	No.		No.	
Newfoundland.....	2,387	1,752	-26.6	3,358	+40.7
Prince Edward Island.....	9,432	7,335	-22.2	8,025	-14.9
Nova Scotia.....	21,075	12,518	-40.6	18,264	-13.3
New Brunswick.....	22,116	11,786	-46.7	18,331	-17.1
Quebec.....	122,617	95,777	-21.9	108,865	-11.2
Ontario.....	140,602	121,333	-13.7	127,492	- 9.3
Manitoba.....	49,201	43,306	-12.0	44,264	-10.0
Saskatchewan.....	103,391	93,924	- 9.2	94,402	- 8.7
Alberta.....	79,424	73,212	- 7.8	74,661	- 6.0
British Columbia.....	24,748	19,934	-19.5	23,946	- 3.2
Yukon and Northwest Territories.....	22	26	+18.2	26	+18.2
Canada.....	575,015	480,903	-16.4	521,634	- 9.3

¹ See text immediately preceding table.

Farm Areas.—The total area of farms as defined in the 1961 Census was 172,551,051 acres, only slightly less than the 173,923,691 acres recorded in 1956. Improved farm land for the country as a whole was up 3 p.c. from 100,326,243 acres to 103,403,426 acres and unimproved farm land, which includes woodland and rough pasture, was down about 6 p.c. from 73,597,448 acres to 69,147,625 acres. Decreases in total farm area in the six eastern provinces and in British Columbia offset by almost 1,400,000 acres the increases in total farm area in the Prairie Provinces and the Territories. As Table 46 shows, only Manitoba, Alberta and British Columbia reported more farm land under crops in 1961 than in 1956 but the total increase in these provinces was somewhat less than the total decrease in the other provinces. On the other hand, the total increase in improved pasture in the four western provinces was somewhat greater than the total decrease in the eastern provinces and there was a substantial increase in the acreage under summer fallow for Canada as a whole.

46.—Use of Farm Land, by Province, Censuses of 1956 and 1961

Item	Newfoundland		Prince Edward Island		Nova Scotia		New Brunswick	
	1956	1961	1956	1961	1956	1961	1956	1961
	acres	acres	acres	acres	acres	acres	acres	acres
Improved Land.....	24,234	20,455	645,492	579,558	629,871	497,521	951,291	734,107
Under crops ¹	15,968	12,919	419,099	391,112	416,235	329,114	617,279	482,548
Pasture (improved)...	5,739	4,097	201,225	167,913	161,424	127,468	252,686	200,047
Summer fallow.....	92	145	2,463	2,532	2,649	2,654	13,560	5,648
Other.....	2,435	3,294	22,705	18,001	49,566	38,285	67,766	45,864
Unimproved Land.....	47,580	34,106	419,971	380,599	2,145,768	1,732,874	2,030,158	1,465,568
Woodland.....	26,919	19,802	334,226	296,759	1,566,071	1,362,869	1,703,702	1,230,861
Other.....	20,661	14,304	85,745	83,840	579,697	370,005	326,456	234,707
Totals, Farm Area..	71,814	54,561	1,065,463	960,157	2,775,642	2,230,395	2,981,449	2,199,675

¹ Includes field, vegetable, fruit and nursery crop land.

46.—Use of Farm Land, by Province, Censuses of 1956 and 1961—concluded

Item	Quebec		Ontario		Manitoba		Saskatchewan	
	1956	1961	1956	1961	1956	1961	1956	1961
	acres	acres	acres	acres	acres	acres	acres	acres
Improved Land.....	8,629,835	7,864,176	12,572,157	12,032,924	11,453,783	11,963,994	40,506,000	43,117,813
Under crops ¹	5,549,524	5,213,302	8,219,407	7,990,358	7,686,013	7,688,728	24,480,501	23,923,192
Pasture (improved)....	2,642,764	2,312,950	3,470,688	3,295,609	594,902	719,819	1,128,001	1,394,280
Summer fallow.....	67,082	46,344	333,973	244,842	2,827,551	3,230,095	14,193,468	17,179,572
Other.....	370,465	291,580	548,089	502,115	345,317	325,352	704,030	620,769
Unimproved Land.....	7,280,293	6,334,316	7,307,489	6,545,583	6,478,034	6,205,957	22,287,979	21,297,705
Woodland.....	4,877,803	4,501,305	3,338,870	3,257,589	1,566,494	1,490,673	2,379,043	2,194,920
Other.....	2,402,490	1,833,011	3,968,619	3,287,994	4,911,540	4,715,284	19,908,936	19,102,785
Totals, Farm Area..	15,910,128	14,198,492	19,879,646	18,578,507	17,931,817	18,169,951	62,793,979	64,415,518
	Alberta		British Columbia		Yukon and N.W.T.		Canada	
	1956	1961	1956	1961	1956	1961	1956	1961
	acres	acres	acres	acres	acres	acres	acres	acres
Improved Land.....	23,746,113	25,288,527	1,166,752	1,303,263	712	1,088	100,326,243	103,403,426
Under crops ¹	14,850,171	15,614,839	689,749	788,896	230	526	62,944,176	62,435,534
Pasture (improved)....	1,279,894	1,670,391	320,251	354,830	245	492	10,057,819	10,247,896
Summer fallow.....	7,091,264	7,449,758	87,479	81,785	44	11	24,619,625	28,243,386
Other.....	524,784	553,539	69,273	77,752	193	59	2,704,623	2,476,610
Unimproved Land.....	22,224,282	21,940,126	3,372,129	3,203,289	3,765	7,502	73,597,448	69,147,625
Woodland.....	2,891,128	2,138,137	855,398	752,990	887	1,484	19,540,541	17,247,389
Other.....	19,333,154	19,801,989	2,516,731	2,450,299	2,878	6,018	54,056,907	51,900,236
Totals, Farm Area..	45,970,395	47,228,653	4,538,881	4,506,552	4,477	8,590	173,923,691	172,551,051

¹ Includes field, vegetable, fruit and nursery crop land.

Size of Farms.—Farms are classified by size and by province in Table 47. More than 56 p.c. of the farms of Canada contain less than 240 acres. Size, of course, varies greatly among the provinces; in Newfoundland almost 90 p.c. of the farms are under 70 acres; in the Maritime Provinces 80 p.c. are under 240 acres; in Quebec and Ontario 67 p.c. are between 70 and 240 acres; in the Prairie Provinces 43 p.c. contain from 70 to 399 acres and 54 p.c. 400 or more acres; and in British Columbia 88 p.c. are between 3 and 400 acres in size.

47.—Farms classified by Size and by Province, Census 1961

Size of Farm	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario
	No.	No.	No.	No.	No.	No.
Under 3 acres	225	51	190	114	498	1,738
3 — 9 acres.....	640	91	462	188	1,120	4,434
10 — 69 ".....	677	1,414	2,440	1,556	12,722	19,181
70 — 239 ".....	184	5,106	6,567	7,088	68,825	76,112
240 — 399 ".....	19	558	1,781	1,852	9,993	14,248
400 — 559 ".....	4	86	634	625	1,940	3,699
560 — 759 ".....	1	17	260	214	477	1,209
760 — 1,119 ".....	1	9	112	99	135	500
1,120 — 1,599 ".....	—	2	48	32	44	152
1,600 acres or over.....	1	1	24	18	23	60
Totals, Census Farms.	1,752	7,335	12,518	11,786	95,777	121,333

47.—Farms classified by Size and by Province, Census 1961—concluded

Size of Farm	Manitoba	Saskatchewan	Alberta	British Columbia	Yukon and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.
Under 3 acres.....	209	128	238	1,229	—	4,620
3 — 9 acres.....	553	262	683	3,678	3	12,114
10 — 69 ".....	1,909	829	1,813	7,903	5	50,449
70 — 239 ".....	10,460	10,860	15,408	3,541	8	204,159
240 — 399 ".....	12,562	20,977	19,385	1,249	2	82,626
400 — 559 ".....	7,628	17,665	11,763	720	—	44,764
560 — 759 ".....	5,065	15,676	8,421	518	2	31,860
760 — 1,119 ".....	3,284	15,499	7,498	499	6	27,642
1,120 — 1,599 ".....	1,133	7,445	3,969	266	—	13,091
1,600 acres or over.....	503	4,583	4,034	331	—	9,578
Totals, Census Farms.....	43,306	93,924	73,212	19,934	26	480,903

Persons Employed in Agriculture.—The number of persons employed in agriculture declined in each of the ten provinces during the 1951-61 period. Table 48 shows that the agricultural labour force totalled 648,966 persons for all Canada in 1961, down 20.8 p.c. from the 1951 figure. The 1961 total represented 10.0 p.c. of the total labour force; the proportion in 1951 was 15.5 p.c. The number of farmers and farm workers in relation to the total labour force was highest in the Provinces of Saskatchewan and Prince Edward Island; the proportion was lowest in Newfoundland and British Columbia.

48.—Number of Persons, 15 Years of Age or Over, Employed in Agriculture, by Province, Censuses of 1951 and 1961

Province or Territory	Farmers and Farm Workers ¹			
	1951		1961	
	Number	P.C. of Total Labour Force	Number	P.C. of Total Labour Force
Newfoundland.....	3,657	3.4	1,694	1.5
Prince Edward Island.....	12,869	37.8	9,188	26.9
Nova Scotia.....	23,352	10.6	12,433	5.3
New Brunswick.....	26,488	15.7	12,727	7.1
Quebec.....	191,004	13.0	132,576	7.5
Ontario.....	200,937	10.7	172,171	7.2
Manitoba.....	72,713	24.5	59,924	17.5
Saskatchewan.....	145,410	48.5	119,580	36.7
Alberta.....	114,564	32.4	104,162	21.3
British Columbia.....	28,352	6.4	24,455	4.2
Yukon and Northwest Territories.....	32	0.3	56	0.4
Canada.....	819,378	15.5	648,966	10.0

¹ Persons employed on farms and those employed in related agricultural activities such as landscape gardening, groundskeeping, operation of chicken hatcheries, etc.

Farm Machinery and Electrification.—The numbers of most types of machinery on farms increased considerably between 1951 and 1961 as shown in Table 49. However, technological changes were reflected in a reduction in the numbers of such items as threshing machines and grain binders since these types of harvesting equipment are rapidly being replaced by combines.

49.—Farm Machinery, by Province, Censuses of 1951 and 1961

Item and Year	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario
	No.	No.	No.	No.	No.	No.
Automobiles.....1951	185	4,147	6,970	7,999	41,602	114,870
.....1961	323	4,713	6,618	6,872	55,385	110,773
Motor trucks.....1951	507	1,679	5,687	4,786	19,167	41,486
.....1961	715	3,253	5,965	4,657	26,597	62,812
Tractors.....1951	128	2,776	4,307	5,221	31,971	105,204
.....1961	462	5,713	7,074	8,102	70,697	150,046
Grain combines.....1951	—	18	16	211	420	10,081
.....1961	2	644	154	770	3,046	22,387
Threshing machines.....1951	5	2,973	826	2,450	30,360	15,946
.....1961	4	1,656	482	915	15,340	16,843
Grain binders.....1951	4	5,956	2,101	4,149	43,467	85,135
.....1961	1	3,222	1,363	1,827	33,647	43,802
	Manitoba	Saskatchewan	Alberta	British Columbia	Yukon and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.
Automobiles.....1951	32,060	62,963	46,314	12,557	—	329,667
.....1961	34,619	72,152	52,167	14,322	7	357,951
Motor trucks.....1951	21,163	52,626	39,723	9,291	7	196,122
.....1961	31,806	82,669	71,508	12,004	26	302,012
Tractors.....1951	50,984	106,664	79,282	13,148	3	399,686
.....1961	61,463	126,613	102,624	16,974	21	549,789
Grain combines.....1951	15,268	42,997	20,852	687	—	90,600
.....1961	23,662	65,084	38,530	1,331	1	155,611
Threshing machines.....1951	9,425	19,221	14,768	717	—	96,691
.....1961	5,613	11,623	13,006	572	3	68,057
Grain binders.....1951	31,410	70,584	57,930	2,638	—	303,374
.....1961	12,725	29,998	32,476	1,609	5	160,575

The proportion of farms reporting electric power increased in all provinces during the same period, although the fact that there were fewer farms resulted in a decrease in the number reporting electric power in certain provinces. The most important increases occurred in Prince Edward Island where the proportion of farms reporting electric power was 22 p.c. in 1951, 40 p.c. in 1956 and 78 p.c. in 1961; in Newfoundland where the increase was from 38 p.c. in 1951 to 44 p.c. in 1956 and 66 p.c. in 1961; in Saskatchewan where the increase was from 16 p.c. in 1951 to 42 p.c. in 1956 and 66 p.c. in 1961; and in Alberta where it was from 25 p.c. to 52 p.c. and 72 p.c. for the same years.

50.—Farm Electrification, by Province, Censuses of 1951, 1956 and 1961

Province or Territory	1951		1956		1961	
	Farms Reporting Electric Power	P.C. of All Farms	Farms Reporting Electric Power	P.C. of All Farms	Farms Reporting Electric Power	P.C. of All Farms
	No.		No.		No.	
Newfoundland.....	1,383	38.1	1,059	44.4	1,152	65.8
Prince Edward Island.....	2,226	22.0	3,748	39.7	5,728	78.1
Nova Scotia.....	16,733	71.2	18,677	88.6	11,953	95.5
New Brunswick.....	15,938	60.3	19,328	87.4	11,371	96.5
Quebec.....	90,209	67.2	108,015	88.1	93,197	97.3
Ontario.....	110,595	73.8	125,310	89.1	115,453	95.2
Manitoba.....	25,208	48.1	41,464	84.3	39,081	90.2
Saskatchewan.....	18,213	16.3	43,778	42.3	61,626	65.6
Alberta.....	20,709	24.6	40,937	51.5	52,936	72.3
British Columbia.....	18,168	68.8	20,279	81.9	17,370	87.1
Yukon and Northwest Territories.....	1	25.0	9	40.9	15	57.7
Canada.....	319,383	51.3	422,604	73.5	409,882	85.2

Farm Capital.—While the value of farm land and buildings in Canada increased by more than one half between 1951 and 1961 and the value of farm machinery and equipment increased by about one third, there was a slight decrease in the value of livestock and poultry on farms. Table 51 gives the value of farm capital by province for 1951 and 1961.

51.—Farm Capital, by Province, Censuses of 1951 and 1961

Province or Territory and Year	Value of Land and Buildings	Value of Machinery and Equipment	Value of Livestock and Poultry	Total Capital Value
	\$	\$	\$	\$
Newfoundland.....1951	14,658,139	1,416,655	3,581,985	19,656,779
.....1961	19,006,200	2,944,500	1,986,700	23,937,400
Prince Edward Island.....1951	47,843,719	16,261,195	23,048,291	87,153,205
.....1961	52,500,800	26,856,300	16,939,400	96,296,500
Nova Scotia.....1951	94,485,972	25,223,734	32,755,239	152,464,945
.....1961	89,262,800	30,252,100	26,073,900	145,588,800
New Brunswick.....1951	98,716,709	26,971,141	32,090,709	157,778,559
.....1961	90,114,800	31,682,200	23,566,000	145,363,000
Quebec.....1951	846,972,820	211,937,327	340,452,974	1,399,363,121
.....1961	1,014,681,500	301,257,000	308,941,100	1,624,879,600
Ontario.....1951	1,419,363,802	445,277,532	683,328,284	2,547,969,618
.....1961	2,572,302,700	579,281,700	590,011,600	3,741,596,000
Manitoba.....1951	528,872,527	231,801,397	156,112,868	916,786,792
.....1961	719,612,000	272,018,900	162,456,700	1,154,087,600
Saskatchewan.....1951	1,182,905,467	525,644,660	283,223,123	1,991,773,250
.....1961	1,856,523,300	686,825,700	321,010,300	2,864,359,300
Alberta.....1951	1,015,289,268	390,003,340	384,323,689	1,789,616,297
.....1961	1,715,367,200	550,875,500	451,254,100	2,717,496,800
British Columbia.....1951	278,068,232	58,760,356	71,437,080	408,265,668
.....1961	493,030,800	86,487,700	77,647,800	657,166,300
Yukon and N.W.T.....1951	30,500	14,925	2,713	48,138
.....1961	239,200	149,900	61,300	450,400
Canada.....1951	5,527,207,155	1,933,312,262	2,010,356,955	9,470,876,372
.....1961	8,622,641,300	2,568,631,500	1,979,948,900	13,171,221,700

Section 5.—International Crop Statistics

Tables 52 and 53 are based on estimates published in March and April 1965 by the Foreign Agricultural Service, United States Department of Agriculture, and give the acreages and production of wheat and the production of oats and barley for the harvest of 1963 and 1964 with average for the years 1955-59, in the leading countries of the world.

52.—Estimated Acreages and Production of Wheat Harvested in 1963 and 1964 in Specific Countries, with Average for 1955-59

Continent and Country	Acreages of Wheat			Production of Wheat		
	Average 1955-59 ^a	1963 ^a	1964	Average 1955-59 ^a	1963 ^a	1964
	'000	'000	'000	'000 bu.	'000 bu.	'000 bu.
North America¹	74,160	74,860	80,910	1,606,000	1,931,000	1,970,000
Canada.....	22,730	27,566	29,685	465,618	723,442	600,000
Mexico.....	2,214	2,006	1,962	41,615	64,890	77,100
United States.....	49,128	45,209	49,170	1,095,357	1,142,013	1,290,000

^aFor footnote, see end of table.

52.—Estimated Acreages and Production of Wheat Harvested in 1963 and 1964 in Specified Countries, with Average for 1955-59—concluded

Continent and Country	Acreages of Wheat			Production of Wheat		
	Average 1955-59 ¹	1963 ²	1964	Average 1955-59 ¹	1963 ²	1964
	'000	'000	'000	'000 bu.	'000 bu.	'000 bu.
Europe¹	71,870	68,560	72,020	1,865,000	2,000,000	2,220,000
Europe West ¹	46,560	43,800	46,350	1,313,000	1,366,000	1,570,000
Austria	634	679	699	20,800	25,340	27,580
Belgium	498	493	533	26,670	27,880	33,060
Britain	2,098	1,928	2,203	101,720	111,920	136,260
Denmark	179	333	316	10,520	18,190	19,770
Finland	314	590	663	7,510	14,600	17,130
France	10,432	9,511	10,932	353,210	376,580	500,370
Germany, West	3,045	3,400	3,560	138,680	178,000	190,500
Greece	2,704	2,311	2,984	57,760	50,960	79,720
Ireland	361	233	214	15,280	10,190	9,970
Italy	12,145	10,859	10,892	329,880	298,610	315,620
Netherlands	250	312	374	14,290	19,490	26,160
Norway	35	17	18	1,130	650	740
Portugal	2,009	1,675	1,853	24,290	18,540	16,770
Spain	10,728	10,475	10,057	165,400	178,540	145,140
Sweden	831	671	741	28,030	23,390	35,010
Switzerland	243	250	251	10,860	10,550	13,700
Europe East ¹	25,310	24,760	25,670	552,000	633,000	650,000
Bulgaria	3,466	3,064	3,128	79,000	69,300	74,600
Czechoslovakia	1,818	1,779	1,903	54,500	64,900	63,900
Germany, East	1,026	1,053	1,063	42,160	44,200	44,100
Hungary	3,112	2,412	2,747	68,500	55,970	75,700
Poland	3,581	3,810	4,052	83,900	112,700	112,730
Romania	7,302	7,100	7,314	118,600	139,280	139,620
Yugoslavia	4,750	5,288	5,189	102,000	145,140	135,950
U.S.S.R. (Europe and Asia) ²	159,000	160,000	160,600	1,910,000	1,470,000	2,000,000
Asia¹	141,960	145,280	149,650	1,890,000	1,965,000	1,940,000
China	—	—	—	900,000	—	—
India	30,393	33,748	32,878	329,930	397,890	356,700
Iran	—	—	—	95,950	110,230	97,370
Israel	2,540	—	—	27,120	16,530	22,050
Japan	137	129	138	2,420	2,010	4,780
Jordan	1,551	1,442	1,256	50,480	26,290	45,710
Korea, Republic of	638	510	—	5,460	2,790	10,840
Lebanon	317	290	361	4,470	2,420	6,100
Pakistan	162	138	146	1,680	1,650	1,470
Syria	11,496	12,592	12,500	133,190	154,860	153,740
Turkey	2,540	3,311	—	25,940	29,400	36,740
	16,990	17,500	19,770	228,000	290,000	260,000
Africa¹	17,610	18,160	17,830	195,000	235,000	220,000
Algeria	4,658	4,991	—	46,364	58,050	44,100
Egypt	1,561	1,453	1,557	53,780	55,120	58,790
Morocco	3,888	4,084	3,917	35,720	43,930	43,920
South Africa, Republic of	2,906	2,940	2,978	27,550	32,440	38,070
Tunisia	2,908	2,790	2,600	17,800	24,000	16,200
South America¹	18,680	17,940	18,820	324,000	375,000	430,000
Argentina	11,598	12,815	—	225,680	300,000	340,000
Brazil	2,386	—	—	24,460	5,000	11,000
Chile	2,030	2,104	2,093	40,600	48,480	42,250
Colombia	412	279	262	5,290	3,300	3,120
Peru	365	371	376	5,170	5,510	5,510
Uruguay	1,604	875	1,306	18,950	8,700	23,950
Oceania	9,992	16,678	18,161	173,130	337,910	388,000
Australia	9,889	16,475	17,980	168,320	327,960	380,000
New Zealand	103	203	181	4,810	9,950	8,000
World Totals¹	493,270	501,480	517,990	7,965,000	8,315,000	9,170,000

¹ Estimated totals, which in the case of production are rounded to millions, include allowances for any missing data for countries shown and for other producing countries not shown.

² Tentative unofficial acreage and production estimates.

53.—Estimated Production of Oats and Barley Harvested in 1963 and 1964 in Specified Countries, with Average for 1955-59

Continent and Country	Oats			Barley		
	Average 1955-59 ¹	1963 ²	1964	Average 1955-59 ¹	1963 ²	1964
	'000 bu.	'000 bu.	'000 bu.	'000 bu.	'000 bu.	'000 bu.
North America¹	1,660,000	1,438,000	1,243,000	671,000	635,000	578,000
Canada	374,764	453,102	357,178	237,926	220,664	166,816
Mexico	5,308	5,510	4,130	8,500	8,180	7,580
United States	1,278,145	979,400	881,891	424,448	405,577	403,072
Europe¹	1,315,000	1,205,000	1,100,000	1,050,000	1,585,000	1,567,000
Europe West ¹	935,000	850,000	800,000	800,000	1,285,000	1,287,000
Austria	23,740	23,540	22,520	17,110	28,370	27,800
Belgium	31,470	27,240	25,710	14,520	22,120	23,680
Britain	163,310	100,660	92,470	148,200	307,950	345,340
Denmark	51,210	46,230	56,560	110,090	156,110	180,410
Finland	48,180	56,500	54,990	15,010	22,610	19,950
France	224,270	195,570	157,490	197,890	334,250	307,040
Germany, West	156,630	159,900	159,000	111,700	163,510	179,830
Greece	11,000	9,350	10,680	10,950	11,160	12,780
Ireland	34,380	26,390	23,240	16,110	27,300	25,150
Italy	37,490	37,750	32,060	13,240	12,870	11,550
Luxembourg	2,890	2,870	1,650	—	—	—
Netherlands	32,140	29,240	28,920	12,970	17,770	17,260
Norway	9,320	7,770	8,650	13,480	21,280	22,050
Portugal	7,450	6,780	5,660	3,850	2,810	2,150
Spain	37,000	32,110	26,250	82,470	95,120	73,490
Sweden	58,750	81,250	88,680	26,760	56,450	62,730
Switzerland	3,850	2,470	2,620	3,430	4,360	4,780
Europe East¹	380,000	355,000	300,000	250,000	300,000	280,000
Bulgaria	12,120	9,990	10,600	21,080	24,800	28,500
Czechoslovakia	64,830	54,900	45,800	61,775	74,400	60,900
Germany, East	72,338	52,220	52,400	37,760	50,840	50,500
Hungary	14,605	7,300	4,500	38,860	39,920	37,700
Poland	168,650	195,000	154,000	53,630	67,930	58,200
Romania	22,530	9,000	5,500	16,940	16,080	15,900
Yugoslavia	24,090	23,770	20,200	21,890	24,070	24,500
U.S.S.R. (Europe and Asia) ²	845,000	255,000	270,000	440,000	750,000	940,000
Asia¹	105,000	106,000	102,000	845,000	815,000	765,000
China	65,000	—	—	311,000	—	—
Cyprus	—	—	—	3,050	4,100	—
India	—	—	—	124,600	111,290	91,170
Iran	—	—	—	42,530	46,000	41,000
Iraq	—	—	—	44,990	43,500	—
Israel	—	—	—	2,950	1,700	4,300
Japan	12,188	10,180	9,670	93,530	33,820	51,750
Korea, Republic of	—	—	—	36,260	12,700	48,760
Pakistan	—	—	—	6,620	6,670	5,700
Syria	456	—	—	16,060	32,150	23,000
Turkey	25,406	32,700	29,300	139,000	180,000	130,000
Africa¹	15,000	14,000	16,000	125,000	165,000	105,000
Algeria	4,840	—	—	34,000	43,600	14,000
Egypt	—	—	—	6,090	7,400	6,200
Morocco	1,570	1,000	1,300	55,250	67,000	46,000
South Africa, Republic of	6,040	8,100	9,100	1,150	1,600	2,100
Tunisia	660	—	—	8,440	11,900	6,000
South America¹	77,000	77,000	72,000	77,000	75,000	70,000
Argentina	64,620	62,420	55,460	50,510	46,850	37,200
Chile	7,970	9,140	8,280	4,930	6,370	6,180
Colombia	—	—	—	3,290	5,420	5,050
Ecuador	—	—	—	3,930	3,450	3,100
Peru	—	—	—	8,550	9,020	9,650
Uruguay	2,798	3,850	5,830	1,460	850	1,800
Oceania	66,060	86,970	104,180	48,370	49,930	56,070
Australia	63,630	85,290	102,380	45,400	45,200	51,070
New Zealand	2,430	1,680	1,800	2,970	4,730	5,000
World Totals¹	4,085,000	3,180,000	2,910,000	3,255,000	4,075,000	4,080,000

¹ Estimated totals, which are rounded to millions, include allowances for any missing data for countries shown and for other producing countries not shown.

² Tentative unofficial production estimates.

CHAPTER XII.—FORESTRY*.

CONSPECTUS

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*The interpretation of the symbols used in the tables throughout the Year Book
will be found on p. viii of this volume.*

Canada's extensive forests have been an invaluable asset to the country and its people since the earliest days of settlement. The productive portion of these forests has poured increasing wealth into the stream of national income, contributing to the economy of the country as the producer of raw materials for industry and as the source of livelihood for hundreds of thousands of persons. At the same time, the existence of widespread forest cover, productive or unproductive in the sense of human utilization, remains essential to the maintenance of the balance of nature—in protecting water-catchment areas and assuring supplies of water, in lowering the temperature, reducing the velocity of the wind and protecting the land against drought and erosion, and in providing shelter for birds and animals.

Perhaps in no other country is the national wealth so dependent upon its forest resources and the success of its forest industries as in Canada. The annual forest harvest of some 3,424,000,000 cu. feet supports a highly complex and diversified export and domestic industry directly employing more than 300,000 persons and paying out \$1,200,000,000 annually in salaries and wages. The forests support 8,000 sawmills and 4,000 wood-using plants, many of them small units contributing appreciably to the income of local economies. The pulp and paper industry alone stands first among Canadian manufactures in terms of employment, wages paid, new investment and net value of output, and the sale of forest products abroad represents about 27 p.c. of the value of Canada's export trade.

Section 1.—Forest Regions†

The forests of Canada cover a vast area in the north temperate climatic zone. Wide variations in physiographic, soil and climatic conditions cause marked differences in the character of the forests in different parts of the country; hence, eight fairly well defined

* Sections of this Chapter that deal with forest regions, resources and depletion and the federal forestry program were revised by the Department of Forestry, Ottawa. Provincial forestry programs were prepared by the forestry officials of the respective provincial governments. Sections dealing with forest and allied industries, except as otherwise noted, were revised in the Forestry Section, Industry Division, Dominion Bureau of Statistics.

† A map that shows the forest regions is inserted in Chapter I, illustrating the article on the Flora of Canada. A larger-scale, more detailed map is available from the Department of Forestry. A more detailed discussion of forest regions is given in Bulletin 123, *Forest Regions of Canada*, published by the Department of Forestry. Accounts of variations in Canadian physiography and climate are included in a special article on The Climate of Canada, appearing in the 1959 Year Book, pp. 23-51.

forest regions may be recognized. These regions, with the relative proportion of the total area of all forest regions occupied by each, are as follows:—

<u>Region</u>	<u>Percentage of Forest Area</u>	<u>Region</u>	<u>Percentage of Forest Area</u>
Boreal.....	82.1	Acadian.....	2.0
Great Lakes-St. Lawrence.....	6.5	Columbia.....	0.8
Subalpine.....	3.7	Deciduous.....	0.4
Montane.....	2.3		
Coast.....	2.2	TOTAL.....	100.0

Boreal Forest Region.—This Region comprises the greater part of the forest area of Canada, forming a continuous belt from Newfoundland and the Labrador coast westward to the Rocky Mountains and northwestward to Alaska. The white and the black spruces are characteristic species; other prominent conifers are tamarack which ranges throughout, balsam fir and jack pine in the eastern and central portions, and alpine fir and lodgepole pine in the western and northwestern parts. Although the forests are primarily coniferous, there is a general admixture of broadleaved trees such as the white birches and poplars; these are important in the central and south-central portions, particularly in the zone of transition to the prairie. In turn, the proportion of spruce and tamarack rises northward and, with increasingly rigorous climatic conditions, the close forest gives way to the open lichen-woodland which finally merges into tundra. In the east there is, along the southern border of the Region, a considerable intermixture of species from the Great Lakes-St. Lawrence Forest such as the white and the red pines, yellow birch, sugar maple, black ash and eastern white cedar.

Great Lakes St. Lawrence Forest Region.—Along the Great Lakes and the St. Lawrence River Valley lies a forest of a very mixed nature, characterized by the white and the red pines, eastern hemlock and yellow birch. With these are associated certain dominant broadleaved species common to the Deciduous Forest Region, such as sugar maple, red maple, red oak, basswood and white elm. Other species with wide range are the eastern white cedar and largetooth aspen and, to a lesser extent, beech, white oak, butternut and white ash. Boreal species, such as the white and the black spruces, balsam fir, jack pine, poplars, and white birch, are intermixed and, in certain central portions as well as in the east, red spruce is abundant.

Subalpine Forest Region.—This is a coniferous forest found on the mountain uplands in Western Canada. It extends northward to the major divide separating the drainage of the Skeena, Nass and Peace Rivers on the south and to that of the Stikine and Liard Rivers on the north. The characteristic species are Engelmann spruce, alpine fir and lodgepole pine. There is a close relationship with the Boreal Region, from which the black and the white spruces and aspen intrude. There is also some entry of blue Douglas fir from the Montane Forest and western hemlock, western red cedar and amabilis fir from the Coast Forest. Other species found are western larch, whitebark pine, limber pine and, on the coastal mountains, yellow cedar and mountain hemlock.

Montane Forest Region.—The Region occupies a large part of the interior uplands of British Columbia as well as a part of the Kootenay Valley and a small area on the east side of the Rocky Mountains. It is a northern extension of the typical forest of much of the western mountain system in the United States and comes in contact with the Coast, Columbia, and Subalpine Forests. Ponderosa pine is a characteristic species of the southern portions. Blue Douglas fir is found throughout but more particularly in the central and southern parts; lodgepole pine and aspen are generally present, the latter being particularly well represented in the north-central portions. Engelmann spruce and alpine fir from the Subalpine Region together with white birch are important constituents in the northern parts. The white spruce, though primarily boreal in affinity, is also present here. Extensive prairie communities of bunch-grasses and forbs are found in many of the river valleys.

Coast Forest Region.—This is part of the Pacific Coast forest of North America. Essentially coniferous, it consists principally of western red cedar and western hemlock, with abundant sitka spruce in the north and with the addition of Douglas fir in the south. Amabilis fir and yellow cedar occur widely and, together with mountain hemlock and alpine fir, are common toward the timber-line. Western white pine is found in the southern parts and western yew is scattered throughout. Broadleaved trees, such as black cottonwood, red alder and broadleaf maple, have a limited distribution. Arbutus and Garry oak occur in Canada only on the southeast coast of Vancouver Island and the adjacent islands and mainland. These are species whose centres of population lie southward in the United States.

Acadian Forest Region.—Over the greater part of the Maritime Provinces, exclusive of Newfoundland, there is a forest closely related to the Great Lakes-St. Lawrence Region and, to a lesser extent, to the Boreal Region. Red spruce is a characteristic though not exclusive species and associated with it are balsam fir, yellow birch and sugar maple, with some red pine, white pine and hemlock. Beech was formerly a more important forest constituent than at present, for the beech bark disease has drastically reduced its abundance in Nova Scotia, Prince Edward Island and southern New Brunswick. Other species of wide distribution are the black and the white spruces, red oak, white elm, black ash, red maple, white birch, wire birch and the poplars. Eastern white cedar, though present in New Brunswick, is extremely rare elsewhere and jack pine is apparently absent from the upper St. John Valley and the western half of Nova Scotia.

Columbia Forest Region.—A large part of the Kootenay River Valley, the upper valleys of the Thompson and Fraser Rivers and the Quesnel Lake area of British Columbia contain a coniferous forest closely resembling that of the Coast Region. Western red cedar and western hemlock are the characteristic species in this interior "wet belt". Associated trees are the blue Douglas fir which is of general distribution and, in the southern parts, western white pine, western larch, grand fir and western yew. Engelmann spruce from the Subalpine Region is important in the upper Fraser Valley and is found to some extent at the upper levels of the forest in the remainder of the Region. At lower elevations in the west and in parts of the Kootenay Valley the forest grades into the Montane Region and, in a few places, into prairie grasslands.

Deciduous Forest Region.—A small portion of the deciduous forest, widespread in the eastern United States, occurs in southwestern Ontario between Lakes Huron, Erie and Ontario. Here, with the broadleaved trees common to the Great Lakes-St. Lawrence Region, such as sugar maple, beech, white elm, basswood, red ash, white oak and butternut, are scattered a number of other broadleaved species which have their northern limits in this locality. Among these are the tulip-tree, cucumber-tree, papaw, red mulberry, Kentucky coffee-tree, redbud, black gum, blue ash, sassafras, mockernut and pignut hickories, and scarlet, black and pin oaks. In addition, black walnut, sycamore and swamp white oak are confined largely to this Region. Conifers are few and there is only a scattered distribution of white pine, tamarack, red juniper and hemlock.

Section 2.—Forest Resources

The forest area of Canada is estimated at 1,710,788 sq. miles, and about 57 p.c. of that area is capable of producing merchantable timber. The great areas of forest considered commercially non-productive are nevertheless of significant value to the country in the influence they exert on climate, moisture and soil. Table 1 shows the areas of productive and non-productive forest land in each province and territory. Forest land, classified by type of growth and by province, is given in Chapter X at p. 445.

1.—Productive and Non-productive Forest Land, by Province

Province or Territory	Productive Forest Land	Non-productive Forest Land	Total
	sq. miles	sq. miles	sq. miles
Newfoundland.....	33,862	53,930	87,792
Prince Edward Island.....	813	121	934
Nova Scotia.....	15,080	1,194	16,274
New Brunswick.....	23,887	442	24,329
Quebec.....	220,625	157,500	378,125
Ontario.....	164,568	97,174	261,742
Manitoba.....	58,189	64,632	122,821
Saskatchewan.....	50,239	67,499	117,738
Alberta.....	116,572	41,023	157,595
British Columbia.....	208,411	59,227	267,638
Totals, Provinces.....	892,246	542,742	1,434,988
Yukon Territory.....	42,100	39,100	81,200
Northwest Territories.....	33,600	161,000	194,600
Canada.....	967,946	742,842	1,710,788

There are more than 150 tree species in Canada, of which 31 are conifers, commonly called 'softwoods'. About two thirds of these softwoods and 10 p.c. of the large number of deciduous or 'hardwood' species are of commercial importance. Approximately 81 p.c. of the volume of merchantable timber is made up of softwood species. The dominant species existing in each forest region are given in Section 1. Detailed information is contained in Department of Forestry Bulletin No. 61, *Native Trees of Canada*.*

With help from the Federal Government, inventories of the forest resources are made periodically by provincial forest authorities and, with their co-operation, the federal Department of Forestry compiles the National Forest Inventory. The latest estimates of the total stand of timber, by province and region, appear in Table 2. These estimates are subject to constant revision as more accurate and complete inventories are compiled.

The predominant part played by pulp and paper, lumber and other forest product industries in the development of Canada has resulted in a widespread tendency to evaluate the forest in terms of timber alone. However, a growing realization of the economic importance of the forest for its non-commercial values, such as recreation and wildlife and watershed protection, is bringing about increasing recognition of the true value of the forest and is thus developing a broader concept of forestry.

* The sixth edition, 1961, is obtainable from the Queen's Printer, Ottawa, price \$2.50.

2.—Estimate of Standing Timber, by Type and Size and by Province and Region

Province and Region	Coniferous			Broadleaved			Totals		
	Large Material ¹	Small Material ²	Total	Large Material ¹	Small Material ²	Total	Large Material ¹	Small Material ²	Total
	Million cu. ft.	'000 cords	Million cu. ft.	Million cu. ft.	'000 cords	Million cu. ft.	Million cu. ft.	'000 cords	Million cu. ft.
Newfoundland.....	2,125	136,400	13,719	244	3,922	577	2,369	140,322	14,296
Labrador.....	1,105	70,000	7,055	77	2,553	277	1,132	72,353	7,332
Island.....	1,080	66,400	6,664	167	1,569	300	1,187	67,969	6,964
Prince Edward Island....	20	1,329	175	7	800	75	27	2,629	250
Nova Scotia.....	2,149	50,824	6,469	1,529	20,985	3,313	3,678	71,812	9,782
New Brunswick.....	4,300	89,978	11,948	2,652	26,713	4,923	6,952	116,691	16,871
TOTALS, ATLANTIC PROVINCES.....	8,594	279,031	32,311	4,432	52,423	8,888	13,026	331,454	41,199

For footnotes, see end of table.

2.—Estimate of Standing Timber, by Type and Size and by Province and Region—concluded

Province or Territory and Region	Coniferous			Broadleaved			Totals		
	Large Material ¹	Small Material ²	Total	Large Material ¹	Small Material ²	Total	Large Material ¹	Small Material ²	Total
	Million cu. ft.	'000 cords	Million cu. ft.	Million cu. ft.	'000 cords	Million cu. ft.	Million cu. ft.	'000 cords	Million cu. ft.
Quebec.....	59,702	290,220	84,371	17,472	73,985	23,761	77,174	364,205	108,132
Ontario.....	21,584	530,236	66,654	25,466	228,825	44,916	47,050	759,061	111,570
TOTALS, CENTRAL PROVINCES.....	81,286	820,456	151,025	42,938	302,810	68,677	124,224	1,123,266	219,702
Manitoba.....	1,863	92,498	9,725	1,085	24,188	3,121	2,928	116,686	12,846
Saskatchewan.....	1,742	128,686	12,681	3,174	84,909	10,391	4,916	213,595	23,072
Alberta.....	13,241	207,720	30,897	12,343	137,885	24,063	25,584	345,605	54,960
TOTALS, PRAIRIE PROVINCES.....	16,846	428,904	53,303	16,582	246,982	37,575	33,428	675,886	90,878
British Columbia.....	292,020	766,021	357,132	14,337	64,119	19,787	306,357	830,140	376,919
Yukon Territory.....	926	76,000	7,386	180	18,700	1,770	1,106	94,700	9,156
Northwest Territories.....	600	112,000	10,120	424	41,000	3,909	1,024	153,000	14,029
Canada.....	400,272	2,482,412	611,277	78,893	726,024	140,606	479,165	3,208,446	751,883

¹ Ten inches D.B.H. or over (suitable for saw timber).² Four to nine inches (units of 85 cu. ft.).

Tenure of Forest Land.—Corporations and private individuals own 9 p.c. of the productive forest land of Canada and 91 p.c. is in the possession of the Crown in the right of the federal or the provincial governments. Rights to cut Crown timber under lease or licence have been granted on 23 p.c. of the productive forest land; the remainder comprises unalienated productive forest areas and federal lands such as Indian reserves, military reserves, etc.

Woodlots on the 480,903 farms (1961) across the country comprise about 3 p.c. of the total productive forest. These small wooded tracts, ranging in size from three or four acres to 200 or more acres, are among the most accessible forests in Canada. Also, the woodlots of Eastern Canada are, in general, highly productive because they lie in the southern part of the country and frequently occupy soils that are considerably higher in quality than those typical of the northern forests.

3.—Tenure of Occupied Productive Forest Land, by Province

(Net area in sq. miles)

Province or Territory	Provincial Crown Land			Federal Crown Land	Privately Owned Land			Total Occupied Productive Forest Land
	Leases and Licences	Permits and Sales	Total	Total	Farm Wood-lots	Other	Total	
Newfoundland.....	25,976	—	25,976	—	31	1,715	1,746	27,722
Labrador.....	19,219	—	19,219	—	—	—	—	19,219
Island.....	6,757	—	6,757	—	—	1,715	1,746	8,503
Prince Edward Island.....	—	—	—	3	417	388	805	808
Nova Scotia.....	1,148	19	1,167	31	2,130	9,525	11,655	12,853
New Brunswick.....	10,403	—	10,403	413	1,923	10,459	12,382	23,198
Quebec.....	77,805	—	77,805	225	6,678	18,436	25,114	103,144
Ontario.....	83,903	—	83,919 ¹	96	5,086	11,105	16,191	100,206
Manitoba.....	1,488	600	2,088	320	2,327	1,489	3,816	6,224
Saskatchewan.....	1,815	1,000	2,815	592	2,216	2,081	4,297	7,704
Alberta.....	7,659	—	7,659	1,631	3,317	—	3,317	12,607
British Columbia.....	3,834	2,344	6,178	920	1,147	9,141	10,288	17,386
Yukon Territory.....	—	—	—	25	2	—	2	27
Northwest Territories.....	—	—	—	2	—	—	—	2
Canada.....	214,031	3,963	218,010 ¹	4,258 ²	25,274	64,339	89,613	311,881

¹ Includes 16 sq. miles of "other" provincial Crown land. ² Of this total, 320 sq. miles are under lease or licence—293 sq. miles in Alberta, the 25 sq. miles in the Yukon Territory, and the 2 sq. miles in the Northwest Territories.

Section 3.—Forest Depletion

General information on forest depletion and increment as well as statistics on forest fires and fire losses are presented in this Section. The scientific control of the influences that account for wastage, such as forest fires, insect pests, etc., is dealt with in Section 5.

The average annual rate and cause of depletion of reserves of merchantable timber during the ten years 1953-62, together with data for the year 1962 are given in Table 4. Of the total depletion of the forests in the ten-year period, 86 p.c. was utilized and 14 p.c. was destroyed by fire. (Information on the extent of damage caused by agencies other than fire, such as insects, disease and natural mortality, is not available.) The average annual utilization of 3,232,353,000 cu. feet comprised 50 p.c. logs and bolts, 40 p.c. pulpwood, over 8 p.c. fuelwood and almost 2 p.c. other products. A little over 4 p.c. of the total utilization was exported in the form of logs and bolts and pulpwood.

The productive forests of Canada covering an area of 967,946 sq. miles constitute the reserve from which forest production will be obtained for many years to come. The supply of merchantable timber on this area is estimated at 751,883,000,000 cu. feet and the utilization in 1962 of 3,432,000,000 cu. feet therefore represented less than one half of one per cent of the supply. However, it should be noted that utilization does not occur evenly throughout the productive forest area but is concentrated on the relatively small area of occupied forest land (land under lease, licence or private ownership). Thus, overcutting may occur on many of these occupied areas, emphasizing the need for orderly management of all commercial forests if the forest industries are to maintain their important position in the Canadian economy. The more efficient utilization of cut timber is an important factor related to forest depletion, for there is little doubt that in the past too high a percentage of the sawn log was discarded. However, changes of great significance have taken place recently in the uses of wood, permitting the utilization of sizes, qualities and species previously considered unmerchantable.

4.—Forest Utilization and Depletion, 1962 compared with Ten-Year Average 1953-62

Item	Usable Wood		Percentage of Total Depletion	
	Average 1953-62	1962*	Average 1953-62	1962*
	M cu. ft.	M cu. ft.	M cu. ft.	M cu. ft.
Products Utilized—				
Logs and Bolts—				
Domestic use.....	1,608,424	1,882,885	42.8	52.9
Exported.....	8,399	11,855	0.2	0.3
Pulpwood—				
Domestic use.....	1,153,597	1,138,933	30.7	32.0
Exported.....	128,933	104,119	3.4	2.9
Fuelwood.....	276,731	228,456	7.4	6.4
Other products.....	56,269	65,554	1.5	1.8
Totals, Utilization.....	3,232,353	3,431,802	86.0	96.5
Wastage—				
By forest fires.....	526,220	125,532	14.0	3.5
Totals, Depletion.....	3,758,573	3,557,334	100.0	100.0

Forest Fire Statistics.—There were 7,670 forest fires reported in Canada during 1963 but, although the number was 27.2 p.c. higher than the annual average for the previous ten years, fire losses were light. The total area burned was only 17 p.c. of the ten-year

average. Losses of saw timber and pulpwood volumes were only 9 p.c. and 25 p.c., respectively, of average losses. Estimated in monetary terms, damage amounted to less than half the annual average.

5.—Forest Fire Losses, 1962 and 1963, compared with Ten-Year Average 1953-62

Item		Average 1953-62	1962	1963
Totals, Fires	No.	6,031	6,285	7,670
Fires under 10 acres.....	"	4,886	5,450	6,545
Fires 10 acres or over.....	"	1,145	835	1,125
Area Burned	acres	2,699,810	863,585	470,001
Merchantable timber.....	"	584,974	298,625	97,783
Young growth.....	"	559,716	154,798	114,336
Cut-over lands.....	"	338,765	138,790	63,465
Non-forested lands.....	"	1,216,355	271,372	194,417
Average Size of Fire	acres	448	137	61
Merchantable Timber Burned—				
Saw timber.....	M cu.ft.	265,008	8,200	22,367
Small material.....	"	257,553	117,332	63,168
Estimated Values Destroyed¹	\$	13,734,464	6,977,748	4,265,926
Merchantable timber.....	\$	9,446,577	3,235,355	2,640,283
Young growth.....	\$	2,703,241	1,417,618	785,651
Cut-over lands.....	\$	437,633	704,880	221,464
Other property burned.....	\$	1,147,013	1,619,895	618,528
Actual Cost of Fire Fighting	\$	5,596,117	4,264,494	4,772,714
Totals, Damage and Fire Fighting Costs	\$	19,330,581	11,242,242	9,038 640
Area under protection.....	sq. miles	..	1,398,612	1,402,185

¹ Figures do not include such values as damage to soil, stream-flow, wildlife, recreation and tourist facilities.

6.—Forest Fire Losses, by Province or Area, 1962 and 1963, compared with Ten-Year Average 1953-62

Province or Federal Lands	Average 1953-62			1962			1963		
	Fires	Area Burned	Fire Fighting Cost and Damage	Fires	Area Burned	Fire Fighting Cost and Damage	Fires	Area Burned	Fire Fighting Cost and Damage
	No.	acres	\$	No.	acres	\$	No.	acres	\$
Province—									
Newfoundland.....	201	121,089	937,709	148	15,587	129,071	109	5,196	26,922
Prince Edward Island....	1	1	1	1	1	1	1	1	1
Nova Scotia.....	360	7,502	140,679	435	5,012	376,974	376	2,299	22,552
New Brunswick.....	271	12,949	212,283	355	47,082	790,683	376	2,388	38,885
Quebec.....	919	206,773	2,464,245	1,249	493,033	6,048,886	1,172	96,220	3,566,242
Ontario.....	1,371	205,464	5,312,929	1,521	13,804	778,788	1,885	56,138	1,831,430
Manitoba.....	334	514,841	1,198,813	285	175,984	684,554	443	70,477	188,912
Saskatchewan.....	219	285,093	747,825	289	15,629	294,630	255	141,507	772,746
Alberta.....	339	191,120	2,794,666	278	4,506	852,348	554	17,609	1,460,334
British Columbia.....	1,822	452,967	4,692,403	1,536	45,617	1,022,145	2,345	46,346	975,156
Federal Lands—									
Yukon Territory.....	62	197,781	280,541	46	19,855	29,619	44	11,679	55,615
Northwest Territories....	78	497,641	505,144	82	26,325	218,828	69	19,897	89,194
National Parks.....	36	5,986	40,755	48	847	14,756	29	186	3,854
Indian Lands.....	2	2	2	2	2	2	2	2	2
Other Federal Lands (incl. military areas)....	19	604	2,589	13	304	960	13	59	798

¹ Not reported.

² Included in provincial figures.

In 1963 lightning accounted for 31 p.c. of all forest fires and 51 p.c. of the total area burned. Thus, more than two thirds of the fires and nearly one half of the area burned resulted from human error. Persons engaged in recreational activities were responsible for the greatest proportion of man-caused fires.

7.—Forest Fires, by Cause, 1962 and 1963

Cause	1962		1963		Cause	1962		1963	
	No.	p.c.	No.	p.c.		No.	p.c.	No.	p.c.
Recreation.....	1,675	27	2,080	27	Incendiary.....	231	4	323	4
Settlement.....	604	10	864	11	Miscellaneous known...	1,185	19	1,040	13
Woods operations.....	289	5	124	2	Lightning.....	1,622	26	2,351	31
Other industrial					Unknown.....	279	4	240	3
operations.....	95	1	279	4					
Railways.....	217	3	231	3					
Public projects.....	88	1	138	2	Totals.....	6,285	100	7,670	100

Section 4.—Statistics of Forest and Allied Industries*

This Section is concerned with the many industries employed in the felling of timber in the forest and its transformation into the numerous utilitarian shapes and forms required in modern living. The basic industries provide the raw materials for sawmills, pulp and paper mills and for a wide range of secondary industries that convert the products of the basic industries into more highly manufactured goods such as veneers and plywoods, sash and doors, furniture, and a vast range of industries using wood in any form in their processes. These industries, especially the pulp and paper industry and the lumber industry, contribute substantially to the value of the export trade of Canada and thereby provide the exchange necessary to pay for a large share of the imports purchased from other countries, particularly the United States.

Statistics of employment, salaries and wages paid, value of shipments, etc., in the wood industries as a whole are shown for Canada and the provinces in Chapter XVI on Manufactures; these figures and those included in the following tables are based on the revised standard industrial classification and new establishment concept, explained in the Manufactures Chapter.

Subsection 1.—Woods Operations

The forests of Canada provide the raw materials for its sawmills, pulp mills, veneer mills, charcoal, excelsior and other plants, as well as the logs, pulpwood and bolts for export in unmanufactured state, and fuelwood, poles, railway ties, posts and fence rails, mining timber, piling and other primary products that are finished in the woods ready for use or export. Minor forest products, such as Christmas trees, help to swell the total.

Tables 8 and 9 show the distribution of the estimated volume of wood cut in the forests of Canada in recent years by province and by type of product.

* The 1965 Year Book, at pp. 511-517, includes a special article on "Canadian Forest Products and Changing World Markets".

8.—Volume of Wood Cut, by Province, 1959-63

Province or Territory	1959	1960	1961	1962	1963
	M cu. ft.	M cu. ft.	M cu. ft.	M cu. ft.	M cu. ft.
Newfoundland.....	96,695	126,702	98,014	74,649	89,027
Prince Edward Island.....	10,594	10,834	10,157	5,514	6,045
Nova Scotia.....	89,612	98,095	96,747	81,907	84,176
New Brunswick.....	172,602	187,297	193,346	140,627	198,252
Quebec.....	877,158	879,914	914,096	876,043	913,542
Ontario.....	531,528	541,329	494,048	519,414	535,082
Manitoba.....	51,766	45,255	37,602	53,160	36,836
Saskatchewan.....	44,621	49,360	44,036	47,844	38,319
Alberta.....	135,003	148,485	118,390	131,706	133,472
British Columbia.....	1,173,965	1,337,997	1,295,038	1,496,832	1,621,649
Yukon and Northwest Territories.....	2,843	5,697	1,815	4,106	3,965
Canada.....	3,186,387	3,431,465	3,303,289	3,431,802	3,660,365

9.—Volume of Wood Cut, by Type of Product, 1959, 1962 and 1963

Type of Product	1959		1962		1963	
	Quantity Reported or Estimated	Equivalent Volume in M cu. ft. ¹	Quantity Reported or Estimated	Equivalent Volume in M cu. ft. ¹	Quantity Reported or Estimated	Equivalent Volume in M cu. ft. ¹
Logs and bolts..... M ft. b.m.	8,573,080	1,650,176	9,934,202	1,894,740	9,903,163	2,083,839
Pulpwood..... cord	14,357,139	1,241,089	14,624,151	1,243,052	15,501,910	1,318,473
Fuelwood..... " "	3,116,424	249,314	2,816,193	225,296	2,530,022	202,403
Poles and piling..... No.	974,802	14,622	1,725,813	25,887	1,258,772	18,881
Round mining timber..... cord	101,976	8,670	67,479	5,716	36,965	3,141
Fence posts..... No.	10,443,214	13,072	13,481,772	16,178	18,584,648	22,557
Fence rails..... " "	1,410,423	1,411	894,063	894	732,575	733
Wood for charcoal..... cord	36,500	2,920	39,500	3,160	46,000	3,680
Miscellaneous roundwood.. M. cu. ft.	5,113	5,113	16,879	16,879	6,658	6,658
Totals.....	...	3,186,387	...	3,431,802	...	3,660,365

¹ In estimating the annual cut, certain factors have been used to convert commercial units to cubic feet. The factor for logs and bolts for the British Columbia coastal region is 175 cu. ft. per M ft. b.m. logscale and for the remainder of Canada 200; the factor for rough pulpwood and round mining timber is 85, for fuelwood and wood for charcoal 80, poles and piling 15, hewn railway ties 5, fence posts 1.2 and fence rails 1.

Subsection 2.—Wood Industries

Sawmill Industry.—Lumber is by far the most important single product of the sawmill industry (which includes tie mills) in both quantity shipped and value. Table 10 gives provincial production, shipments and value of lumber from sawmills in addition to the value of shipments of all sawmill products and by-products in 1963. The quantity and value of lumber shipments from sawmills, by species, is shown in Table 11. It may be noted that the quantities of lumber produced are much higher than the quantities shipped; this is mainly due to the fact that a considerable volume of lumber is custom sawn by mills (classified in the sawmill industry) for the account of planing mills (classified in the sash, door and planing mill industry), or for wholesalers and dealers who report the corresponding shipments.

10.—Lumber Production and Shipments and Value of All Shipments of the Sawmill Industry, by Province, 1963

Province or Territory	Lumber			Value of Shipments of All Products and By-products
	Production	Quantity Shipped	Value of Shipments	
	M ft. b.m.	M ft. b.m.	\$'000	\$'000
Newfoundland.....	17,234	15,734	1,073	1,346
Prince Edward Island.....	5,751	2,695	174	243
Nova Scotia.....	216,010	162,612	10,879	13,798
New Brunswick.....	287,105	268,576	18,515	23,760
Quebec.....	1,250,462	1,079,774	78,656	94,080
Ontario.....	717,334	610,175	50,671	61,274
Manitoba.....	19,564	13,257	689	970
Saskatchewan.....	54,443	18,590	897	2,132
Alberta.....	296,510	192,085	10,200	14,822
British Columbia.....	6,616,468	6,378,102	421,959	477,983
Yukon and Northwest Territories.....	8,144	5,805	299	351
Canada.....	9,489,025	8,747,405	594,012	690,759

11.—Quantity and Value of Lumber Shipments of the Sawmill Industry, by Species, 1963

Kind of Wood	Quantity		Kind of Wood	Quantity	
	M ft. b.m.	\$'000		M ft. b.m.	\$'000
Spruce.....	2,738,478	164,362	Yellow birch.....	125,322	14,436
Douglas fir.....	2,064,579	142,610	Maple.....	124,434	12,526
Hemlock.....	1,803,989	119,070	Red pine.....	30,677	2,680
Cedar.....	617,091	51,143	Other.....	468,591	29,393
White pine.....	313,858	28,849			
Balsam fir.....	181,242	11,464			
Jack pine.....	279,144	17,480			
			Totals.....	8,747,405	594,012

Shingle Mills.—Most of the shingles and shakes produced in Canada are from British Columbia mills. Of the total of 2,139,000 squares valued at \$25,146,000 shipped in 1963, British Columbia produced 2,109,000 squares valued at \$24,948,000; Quebec, 18,000 squares valued at \$125,000; and the Maritime Provinces, 12,000 squares valued at \$73,000.

Veneer and Plywood Industries.—The production of hardwood veneer and plywood in Canada is confined largely to the eastern provinces and softwood veneer and plywood are produced almost entirely in British Columbia. For the latter, Douglas fir is most commonly utilized because of the availability of large-diameter logs of this species from which large sheets of clear veneer can be obtained. At the same time, veneers of Canadian manufacture are not confined to species native to Canada. A number of imported woods of decorative value are veneered successfully and provide the builder and furniture manufacturer with a wide choice of materials. These products have become almost indispensable in construction and the manufacture of many common products and output continues to increase to supply the heavy demand from both domestic and export markets. Exports of veneer and plywood produced in Canada reached a record \$66,660,484 in 1964.

12.—Veneer and Plywood Shipments, by Type, 1961-63

Type	1961		1962		1963	
	Not over 1/20 Inch	Over 1/20 Inch	Not over 1/20 Inch	Over 1/20 Inch	Not over 1/20 Inch	Over 1/20 Inch
Veneer.....M sq. ft.	641,590	456,549	845,453	592,087	914,558	748,046
§	18,469,432	5,213,141	22,901,197	5,078,395	24,623,608	6,946,192
Softwood.....M sq. ft.	7,745	374,159	8,414	493,817	9,387	623,613
§	107,960	3,095,698	110,560	2,758,631	117,268	4,298,235
Hardwood.....M sq. ft.	633,845	82,390	837,039	98,270	905,171	124,433
§	18,361,472	2,117,443	22,790,637	2,319,764	24,506,340	2,647,957
Plywood (1/4 inch basis).M sq. ft.	1,902,806		2,062,104		2,250,013	
§	105,615,894		123,663,256		140,989,759	
Softwood.....M sq. ft.	1,628,386		1,739,663		1,885,923	
§	79,036,585		89,643,407		103,559,405	
Hardwood.....M sq. ft.	274,420		322,441		364,090	
§	26,579,309		34,019,849		37,430,354	

Other Wood Industries.—There are nine separate industries, other than the saw-mills, the shingle mills and the veneer and plywood mills, included in the "wood industries", most of which obtain from the sawmills and veneer and plywood mills the raw materials that they transform into planed or matched lumber, doors, windows, laminated structures, prefabricated buildings, boxes, barrels, caskets, etc. The wood industries, however, do not include every industry into which wood enters as a raw material; wood is an important raw material in the manufacture of furniture, agricultural implements, musical instruments, etc., industries which, as proven by experience, are more correctly classified under other groups.

Among the nine industries, the sash, door and planing mills group and the hardwood flooring group are the most important, accounting for about 75 p.c. of the shipments of goods of own manufacture and of the revenues and custom work reported by these industries. These two groups, producing products required in the construction of houses and apartments, have shared in the high activity in that field in recent years. In 1963, the value of sash, windows and window units shipped was \$36,365,000, of wooden doors \$26,273,000, and of window or door frames \$6,526,000; shipments of hardwood flooring were 66,430 M ft. b.m. valued at \$11,785,000, and of parquet flooring or hardwood tiles 10,492,000 sq. feet valued at \$1,857,000. Production by the sash, door and planing mill group was down slightly from 1962 but that by the flooring group continued its upward trend. Other important products of the wood-using industries included planed and matched lumber amounting to 1,228,341 M ft. b.m. valued at \$90,119,000, laminated structures valued at \$8,272,000, kitchen cabinets and units valued at \$13,676,000, and prefabricated buildings at \$17,930,000.

Subsection 3.—The Pulp and Paper Industry

The manufacture of pulp and paper has been the leading industry in Canada for many years and the postwar development of the industry has more than kept pace with the vast industrial growth of the nation. Pulp and paper stands first among all industries in net value of shipments, in exports, in total wages paid and in capital invested. It is the largest consumer of electric energy and the largest industrial buyer of goods and services, including transportation, in the land. The industry has a newsprint output more than

three times that of any other country and provides over 41 p.c. of the world's newsprint needs. Among Canada's exports, the value of newsprint is larger than that of any other single commodity, the United States absorbing 87 p.c. (1963).

There are three classes of mills in the industry; in 1963, 28 were making pulp only, 24 were making paper only and 74 were combined pulp and paper mills. The industry includes several forms of industrial activity—operations in the woods with pulpwood as a product, the manufacture of pulp and paper of all kinds, and the manufacture of paperboards. Some of the important pulp companies operate sawmills to utilize the larger timber on their limits to the best advantage, and some lumber manufacturers divert a portion of their spruce and balsam logs to pulp mills. Only a small percentage of the pulpwood cut in Canada is exported in raw or unmanufactured form.

Some plants that are included in the pulp and paper industry also convert paper into stationery and other processed paper products, but this conversion within the pulp and paper industry represents only a small part of Canada's production of converted papers and boards, the bulk of which is made in special converting mills classified in other industrial groups. Principal statistics of these industries are given in Chapter XVI on Manufactures.

13.—Production, Consumption, Exports and Imports of Pulpwood, 1957-63

Year	Production ¹	Pulpwood Used in Canadian Mills ¹	Exports	Imports
	'000 cords	'000 cords	'000 cords	'000 cords
1957.....	14,968	13,367	1,800	180
1958.....	12,759	12,624	1,286	147
1959.....	14,357	13,535	1,107	148
1960.....	13,997	14,116	1,152	228
1961.....	15,474	14,437	1,151	207
1962.....	14,624	14,883	1,225	150
1963.....	15,547 ^p	14,982	1,113	130

¹ Given in terms of rough or unpeeled wood; not including wood residue.

Pulp Production.—The manufacture of pulp, the second stage in this industry, is carried on by mills producing pulp only and also by paper manufacturers operating pulp mills in conjunction with paper mills to provide their own raw material. Such mills usually manufacture a surplus of pulp for sale in Canada or for export. Spruce, supplemented by balsam fir in the east and by hemlock in the west, is the most suitable species for the production of all but the best types of paper.

The preliminary preparation of pulpwood is most commonly carried on at the pulp mill although there are a number of rossing mills operating on an independent basis, chiefly for the purpose of saving freight on material intended for export. Pulpwood is commonly measured by the cord (4' by 4' by 8' of piled material). One cord of rough pulpwood contains approximately 85 cu. feet of solid wood, and one cord of peeled pulpwood 95 cu. feet.

The manufacture of the 12,474,107 tons of pulp produced in 1963 entailed the use of 14,982,487 cords of rough pulpwood and the equivalent of 2,947,060 rough cords of other wood (i.e., sawmill chips, slabs and edgings, sawdust, butts, cores, etc.).

14.—Mill Shipments of Pulp, Mechanical and Chemical, 1957-63

Year	Groundwood Pulp		Chemical Pulps		Total Pulp Shipments ¹	
	Quantity	Value	Quantity	Value	Quantity	Value
	'000 tons	\$'000	'000 tons	\$'000	'000 tons	\$'000
1957.....	295	20,380	2,434	313,896	2,752	334,962
1958.....	264	18,104	2,312	306,866	2,595	325,587
1959.....	281	18,902	2,638	340,854	2,938	360,294
1960.....	267	18,252	2,795	349,694	3,084	368,598
1961.....	260	17,665	3,048	374,221	3,335	392,078
1962.....	287	20,201	3,377	415,937	3,690	436,920
1963.....	287	19,612	3,708	458,773	4,023	479,040

¹ Includes screenings and unspecified pulps.

15.—Pulp Production, by the Chief Producing Provinces, 1957-63

Year	Quebec	Ontario	British Columbia	Other Provinces ¹	Canada ²
	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons
1957.....	4,606	2,746	1,376	1,697	10,425
1958.....	4,223	2,736	1,454	1,724	10,137
1959.....	4,374	2,758	1,927	1,773	10,832
1960.....	4,469	2,967	2,124	1,901	11,461
1961.....	4,578	2,981	2,256	1,964	11,779
1962.....	4,611	3,052	2,411	2,059	12,133
1963.....	4,732	3,074	2,501	2,167	12,474

¹ Prince Edward Island is the only province in which there is no production.² The differences between these figures and the quantities of mill shipments given in Table 14 represent the amounts of pulp further manufactured by the reporting companies.

Pulp Exports.—The main market for Canadian pulp is the United States. For many years this market alone has absorbed between 75 p.c. and 90 p.c. of such exports.

16.—Exports of Pulp to Britain, United States and All Countries, 1955-64

Year	Britain		United States		All Countries	
	Quantity	Value	Quantity	Value	Quantity	Value
	tons	\$	tons	\$	tons	\$
1955.....	280,575	34,814,098	1,868,804	233,796,779	2,366,133	297,304,069
1956.....	244,164	29,762,920	1,919,634	245,080,531	2,374,013	304,536,497
1957.....	225,482	28,662,202	1,847,364	235,258,142	2,282,656	292,406,102
1958.....	216,147	24,666,398	1,832,521	239,874,495	2,219,314	285,448,649
1959.....	217,386	24,726,915	1,966,480	254,049,124	2,450,027	311,252,798
1960.....	282,747	32,203,019	1,999,755	256,170,127	2,601,457	325,121,572
1961.....	275,846	31,022,948	2,176,585	268,949,199	2,868,844	346,660,713
1962.....	251,742	27,722,704	2,398,802	298,166,025	3,044,458	369,902,423
1963.....	279,834	31,620,935	2,505,669	309,915,338	3,339,492	405,292,425
1964.....	338,663	38,463,540	2,676,940	346,016,962	3,636,281	460,653,921

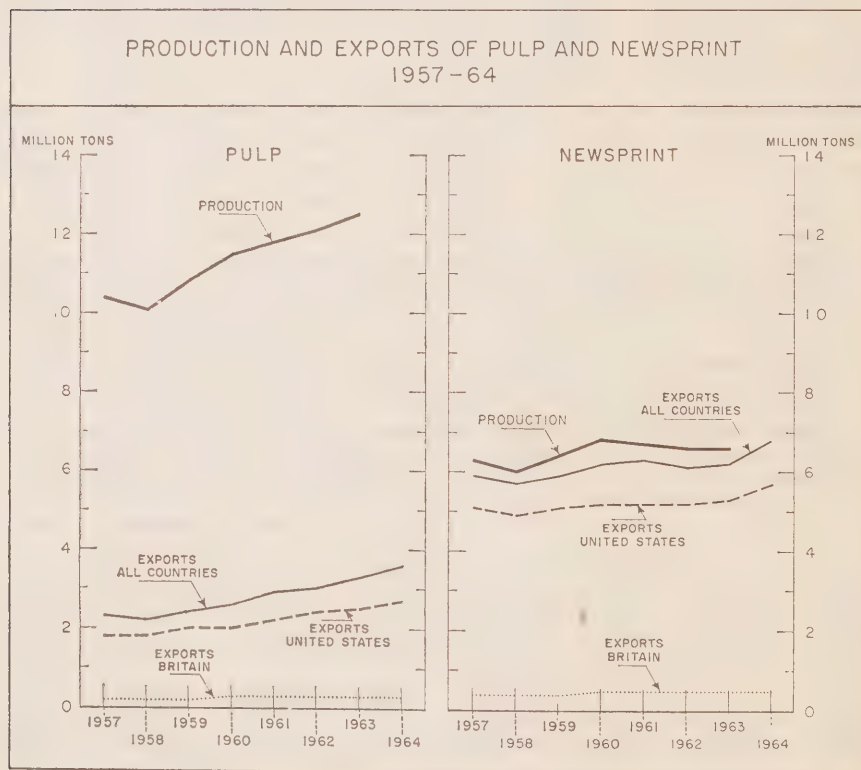
World Pulp Statistics.—Figures of production, exports and imports of pulp for certain countries of the world are shown for 1962 and 1963 in Table 17. It is estimated that these countries produce over three quarters of the world supply of pulp.

17.—Production, Exports and Imports of Pulp, by Leading Countries, 1962 and 1963

(SOURCE: FAO Year Book of Forest Products Statistics)

Country	1962			1963		
	Production	Exports	Imports	Production	Exports	Imports
	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons
Canada¹	11,925	3,041	63	12,424	3,339	64
United States.....	27,832	1,186	2,519	29,427	1,422	2,776
Finland.....	4,906	1,883	2	5,317	2,135	47
Norway.....	1,615	844	43	1,757	863	56
Sweden.....	5,719	3,131	3	6,384	3,537	7

¹ Production figures differ slightly from DBS figures given in Table 15 because of a different basis of calculation.



Paper Production.—During 1963 there were 98 establishments producing paper and paperboard in Canada. In addition to newsprint, Canadian mills have a highly developed production of fine paper, wrapping paper, tissues, paperboard and other cellulose products.

18.—Shipments of Basic Paper and Paperboard, by Type, 1957-63

Year	Newsprint Paper		Book and Writing Paper		Wrapping Paper	
	Quantity	Value	Quantity	Value	Quantity	Value
	'000 tons	\$'000	'000 tons	\$'000	'000 tons	\$'000
1957.....	6,317	724,613	330	85,793	264	57,415
1958.....	5,982	694,067	344	91,402	273	60,858
1959.....	6,371	732,849	372	99,316	310	66,258
1960.....	6,773	793,470	401	105,915	301	65,918
1961.....	6,674	803,732	417	112,283	309	66,731
1962.....	6,648	819,078	434	119,405	323	69,892
1963.....	6,639	809,247	460	126,651	334	72,457
	Paperboard		All Other Papers		Totals	
	Quantity	Value	Quantity	Value	Quantity	Value
	'000 tons	\$'000	'000 tons	\$'000	'000 tons	\$'000
1957.....	830	120,455	132	22,399	7,873	1,010,675
1958.....	882	128,033	141	20,227	7,622	994,587
1959.....	924	135,927	139	21,862	8,116	1,056,212
1960.....	973	141,321	133	21,247	8,561	1,127,871
1961.....	1,018	149,532	140	24,132	8,558	1,156,410
1962.....	1,092	156,995	164	25,128	8,661	1,190,498
1963.....	1,214	175,184	178	27,375	8,825	1,210,914

Quebec produced almost 43 p.c. of the total basic paper and paperboard made in 1963, Ontario over 28 p.c., British Columbia over 13 p.c. and Newfoundland, Nova Scotia, New Brunswick, Manitoba, Saskatchewan and Alberta the remainder.

19.—Shipments of Basic Paper and Paperboard, by Province, 1962 and 1963

Province	1962		1963	
	Quantity	Value	Quantity	Value
	'000 tons	\$'000	'000 tons	\$'000
Quebec.....	3,765	504,061	3,798	509,685
Ontario.....	2,516	376,444	2,527	384,603
British Columbia.....	1,161	157,097	1,201	155,599
Other provinces ¹	1,219	152,896	1,299	161,026
Totals.....	8,661	1,190,498	8,825	1,210,914

¹ Prince Edward Island is the only province in which there is no production.

Newsprint Exports.—Total exports of newsprint from Canada in the years 1955-64 are given in Table 20.

20.—Exports of Newsprint to Britain, United States and All Countries, 1955-64

Year	Britain		United States		All Countries	
	Quantity	Value	Quantity	Value	Quantity	Value
	tons	\$	tons	\$	tons	\$
1955.....	286,343	33,013,480	5,027,767	578,322,418	5,763,167	665,876,987
1956.....	347,905	41,531,514	5,218,911	615,941,551	5,967,194	708,384,822
1957.....	371,870	44,009,073	5,058,229	610,290,208	5,900,625	715,489,761
1958.....	389,000	46,476,034	4,880,985	590,167,442	5,682,832	690,209,468
1959.....	393,942	51,585,851	5,091,770	614,708,362	5,910,173	722,271,166
1960.....	460,537	60,162,971	5,229,909	631,230,363	6,190,286	757,930,406
1961.....	456,962	59,293,740	5,228,156	629,791,521	6,253,717	761,312,790
1962.....	481,822	63,452,326	5,227,006	633,037,421	6,148,294	753,059,629
1963.....	458,814	60,212,940	5,251,125	636,086,302	6,211,946	759,989,558
1964.....	480,332	61,791,304	5,675,627	689,405,679	6,815,629	834,646,119

World Newsprint Statistics.—Since 1913 Canada has led the world in the export of newsprint. Figures for the leading producing countries for the two latest years available are given in Table 21 and 1939 figures are included for comparative purposes. The six countries listed accounted for over 71 p.c. of the estimated world production in 1963, Canada contributing over 41 p.c.

21.—Estimated World Newsprint Production and Exports, by Leading Countries, 1939, 1962 and 1963

(Source: Newsprint Association of Canada)

Country	Production			Exports		
	1939	1962	1963	1939	1962	1963
	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons
Canada ¹	3,175	6,691	6,630	2,935	6,169	6,100
United States.....	939	2,154	2,218	13	109	118
Britain.....	848	734	753	42	27	26
Finland.....	550	969	1,009	433	895	907
Sweden.....	306	694	708	199	452	474
Norway.....	222	259	300	188	201	233

¹ Figures differ slightly from DBS figures given in Tables 18 and 20 because of different bases of calculation.

Subsection 4.—Paper-Using Industries

The paper-using group is comprised of five industries (asphalt roofing manufacturers, folding box and set-up box manufacturers, corrugated box manufacturers, paper bag manufacturers, and miscellaneous paper converters) engaged primarily in manufacturing commodities of paper and paperboard. Establishments engaged in printing, publishing, bookbinding and the allied graphic arts also consume large quantities of these materials but are grouped separately on p. 533.

Some paper-using establishments purchase paper as a raw material from the pulp and paper industry and merely subject it to some form of treatment to fit it for further manufacture in another industry; this occurs in the manufacture of coated, sensitized or corrugated paper. Other firms purchase paper and subject it to treatment to fit it for a definite final use such as in the manufacture of asphalt roofing or waxed wrapping paper. Another large group uses paper and paperboard as a raw material for conversion into paper bags, boxes, envelopes and other commodities.

The manufacture of containers and packages of various kinds has grown very rapidly since ways have been found of converting tough and cheap paper stocks into strongly made boxes which are replacing wooden crates and packing cases. Small attractive paper containers for use in the retail trade are now in common use and their manufacture constitutes an important branch of the paper-using industries. A number of establishments specializing in the production of plastic bags (cellulose, polyethylene, etc.) are included with the paper bag manufacturers.

Composition roofing and sheathing, consisting of paper felt saturated with asphalt or tar and in some cases coated with a mineral surfacing, is being used increasingly as a substitute for metal roofing, wooden shingles and siding materials. Establishments classed as roofing manufacturers also produce a large proportion of the floor tiles manufactured in this country.

Important products manufactured by establishments classed in the miscellaneous paper converters industry are envelopes, waxed paper for packaging, clay coated and enamelled paper and board, aluminum foil laminated with paper or board, paper cups, facial tissues, sanitary napkins, paper towels and napkins, food trays, toilet tissue, etc. Principal statistics of the paper converting industries are given in Chapter XVI on Manufactures.

Printing, Publishing and Allied Industries.—The printing, publishing and allied industries group is made up of six closely related industries: printing and bookbinding, including commercial printers and bookbinders; lithographing, comprised of commercial printing plants using principally the offset printing process; engraving, stereotyping and electrotyping, including photo-engraving; trade composition or type-setting for printers; printing and publishing, comprised of publishers who operate printing plants; and "publishers only", including establishments primarily engaged in publishing and which do no printing.

The revenue resulting from the manufacturing activities of all establishments classed in this group (excluding revenue from auxiliary activities such as trade, etc.) amounted to \$960,525,000 in 1963, an increase of nearly 4 p.c. over 1962. The revenue from commercial and specialty printing was up about 6 p.c. to \$449,012,000 in the same comparison. The important individual revenue items to commercial printers in 1963 were printed advertising (\$103,082,000), the printing of newspapers and periodicals for publishers (\$44,713,000), continuous forms and individual gummed sets (\$44,310,000), printed books and blank books (\$32,467,000), greeting cards (\$21,972,000), and tags, shipping and merchandise (\$20,647,000).

The revenue from publishing (publishing and printing or publishing only) advanced to \$449,839,000 from \$438,672,000 or by 2.5 p.c. The advertising revenue to publishers of newspapers and periodicals of all kinds was \$313,307,000, the net revenue from sales or subscriptions was \$107,032,000, and the revenue from book publishing \$28,157,000, all of which items were substantially higher than in 1962.

Other revenues reported within this group of industries resulted mainly from specialized services such as plate-making, type-setting, etc., and showed little variation in total from the preceding year.

Section 5.—Forest Administration, Research and Conservation

Subsection 1.—Federal Forestry Program

Administration.—The Federal Government is responsible through several departments and agencies for the protection and administration of the forest resources of the Yukon and Northwest Territories and of other federal lands such as the National Parks, Indian reserves, military areas and forest experiment stations.

Under the Department of Forestry Act (SC 1960, c. 41), the Minister of Forestry's duties, powers and functions extend to and include "all matters over which the Parliament of Canada has jurisdiction relating to the forest resources of Canada". The main functions of the Department in the forestry sphere include: (1) provision for the conduct of research relating to the protection, management and utilization of the forest resources of Canada and the better utilization of forest products; (2) undertaking, promoting or recommending measures for the encouragement of public co-operation in the protection and wise use of the forest resources of Canada; (3) co-operating with provincial governments and others by means of agreements relating to forestry matters; (4) provision of forest surveys and advice relating to the protection and management of federally administered forest lands; and (5) assuming responsibility for forest protection and management on federal lands at the request of the department or agency concerned. The Act provides for the establishment of research facilities and of forest experimental areas on federal lands.

Effective Apr. 1, 1965, recommendations of a major departmental reorganization study were implemented, eliminating the previous Branch structure of the Department and creating a framework designed to produce better co-ordination of research effort.* To meet its forestry responsibilities, the Department now maintains an Advisory Group to the Deputy Minister, whose main responsibilities are to develop policies and long-range plans for forest research, forest products research, forest economics and other such matters as federal-provincial relations and liaison with the forest industries and the academic community. A Directorate of Program Co-ordination provides national co-ordination of forestry research programs and supervises national research services at Ottawa. Research institutes and laboratories plan and execute fundamental research within prescribed fields, supporting and complementing the regional research programs carried out in the Department's seven administrative regions—Newfoundland, the Maritimes, Quebec, Ontario, Manitoba-Saskatchewan, Alberta-Yukon Territory-Northwest Territories, and British Columbia. The Department conducts forest surveys on federal lands throughout Canada and provides advice and assistance regarding forest management to the administering agencies. It also provides for the management of forests including timber disposal in certain areas on behalf of other government departments, the most important of these being the military training area, Camp Gagetown, in New Brunswick. Co-operation is extended to the External Aid Office in administering technical assistance programs involving forest surveys in other countries. The Department maintains comprehensive information, editorial and library services. The public information program includes the production and distribution of a number of publications designed to increase public awareness of the importance of Canada's forest resources and the need for conserving them; the distribution of research publications and the interpretation of the scientific work of the Department to industry and the general public; the dissemination of departmental and forestry information to the press, radio and television; the production of exhibits, displays and posters; and the maintenance of a photographic library dealing with forestry subjects.

The Department's Research functions and the Federal-Provincial Forestry Agreements program are described in the following paragraphs.

* The Department of Forestry also includes, under the administration of a separate Assistant Deputy Minister, a division responsible for rural development under authority of the Agricultural Rehabilitation and Development Act (ARDA) and the Maritime Marshland Rehabilitation Act, described at pp. 448-450; the administration of the Feed Grain Assistance Regulations, described at p. 466, is also a responsibility of the Department.

Research on Silviculture, Tree Biology and Fire.—The objects of such research are (1) to provide basic information on the characteristic occurrence, growth, development and behaviour of forest tree species throughout the wide range of forest types and environmental conditions of Canada and (2) to develop and test new or improved methods for use in forest management and forest fire control. The programs are conducted through the seven regional offices across Canada, often in co-operation with other federal departments, provincial forest authorities, other research agencies, universities and industry.

Many of the silvicultural studies involve (a) assessing the factors responsible for the success or failure of natural regeneration following various cutting methods and treatment of seedbeds, (b) comparing different methods of seeding and planting, and (c) determining the effects of different methods of intermediate cutting on the development of residual trees and stands. Studies are made of successional changes in most of the important forest types. Application of silvicultural techniques as well as research in regulation of cut and in methods of protection is aimed at determining how forests may be maintained at the highest levels of production. The relationships between forest growth and site are being studied with a view to the assessment of long-term productivity. The requirements of light, temperature and moisture that will produce optimum conditions for growth and development are being determined for the seedlings of many important species of trees. The physiological processes of growth and reproduction are under investigation for a limited number of species. In tree breeding, superior strains are selected or developed and there is a continual improvement in propagation and breeding techniques. Research in forest land encompasses forest geography and land classification. Research in soils is directed toward determining the relation of tree growth and nutrition to chemical and physical properties of the soil.

Techniques used in mensuration are constantly under review and study; new methods are tested and developed. Research in forest inventory methods is of increasing importance because of the continuing programs of forest inventories being conducted in most provinces and in the northern Territories. Data from air photographs are correlated with field observations to develop new techniques for estimating timber. The use of stand volume tables and of field sampling methods is being investigated and compared. Research is continuing in methods for measuring tree images and tree shadows to determine heights, crown widths, canopy density and other data from photographs taken in different seasons of the year under various conditions. The use of large-scale photography of sample areas is also being investigated and studies are being made in the identification of species and sub-types.

Adequate protection of forests against fire is of vital importance in Canada. The Department works in full co-operation with provincial forest services in almost all phases of forest fire control and has made major contributions in the fields of forest fire danger measurement and forecasting and in fire control planning. Investigations are being made of forest fire behaviour, of the use of prescribed fire for hazard reduction and seedbed preparation, of better methods of reporting forest fires, and of fire damage appraisal and related factors in forest protection standards. Studies are being continued in the use of chemicals for fire suppression and pre-suppression, of fire fighting equipment and techniques, and of the use of aircraft in forest fire control. Another important field of endeavour is the study of lightning and other fire causative agencies.

Forest Products Research.—This work is directed toward obtaining background data on the properties of Canadian woods, developing new and better uses for wood products, improving manufacturing processes, and effecting more complete utilization of wood substances. Activities cover every aspect of forest products except paper and include the determination of the physical, mechanical and chemical properties of wood and their relation to adaptability in use; studies of factors affecting quality of wood and of manufactured wood products; determination of factors that cause wood waste in logging and manufacturing; investigation into fire retardant treatments, the preservative treatment and painting of wood and the use of wood for the manufacture of cellulose, wallboards,

alcohols, organic acids, and extractives; studies to determine possible new economic and more valuable uses for woods; and research to determine methods and means for the economical utilization of all wood substances available from the annual timber harvest.

The program is conducted at two laboratories—at Ottawa and Vancouver—with units consisting of timber engineering, containers, glues and gluing, veneer and plywood, timber physics, wood chemistry, wood preservation, paints and coatings, wood pathology, wood anatomy, logging, lumber manufacture and lumber seasoning. Research results are made available to the thousands of plants comprising Canada's timber-manufacturing and wood-using industries. Liaison is maintained with these industries to ensure that the research being conducted is of optimum national benefit, and assistance is received from a National Advisory Committee comprising representatives of lumber manufacturers and other wood-using groups. There is also constant co-operation with various government units in the performance of many investigations concerned with the use of wood. Research into the use of wood in housing construction and as an engineered material continues in co-operation with the National Research Council and the Central Mortgage and Housing Corporation.

The Department's industrial liaison officers visit sawmills and other wood-working plants to keep industry aware of research developments and technical advances and, on the other hand, to keep the laboratories informed of field problems on which research would be of value. Departmental personnel serve on many national and international technical committees concerned with forestry problems and continuous collaboration is maintained with forest products laboratories in other countries for the dual purpose of exchanging information and avoiding duplication of research.

Forest Insects and Diseases.—Research on forest insects and diseases is conducted at regional laboratories and field stations in all principal forest regions of Canada. A Canada-wide survey is undertaken in co-operation with the provincial forest services and forest industries to maintain an annual census of forest insect and disease conditions and to detect and predict the occurrence of outbreaks. Survey results are made available to owners and operators of forest lands for use in planning salvage programs and directing control measures to reduce damage.

The research programs of the regional laboratories are designed to lead to comprehensive understanding of the biology and ecology of the more destructive forest insects and fungi, and the causes of fluctuations in abundance or severity of damage in time and place. Problems under intensive study include insect defoliators, leaf diseases, sucking insects, dwarf mistletoes, stem cankers, bark- and wood-boring beetles, trunk and root decays, tip- and root-boring insects, diseases of tree seedlings in forest nurseries and virus diseases of forest trees. Laboratory research on development, physiology, nutrition and taxonomy complements the field ecological studies of insects and fungi. Problems of national importance in insect pathology, cytology and genetics, bioclimatology and chemical control are investigated.

Experiments are also carried out in insect and disease control, utilizing cultural techniques, chemicals and biological control agents including parasites, predators and insect pathogens. Technical advisory services are provided in evaluating possibilities of eradication or control, or other applications of research results. Examples include recommendations for reduction of seedling losses in forest tree nurseries through cultural techniques and chemical applications; the co-operative organization of cull surveys to improve forest inventories; consultation with local authorities on the Dutch elm disease problem; and technical co-operation with provincial governments and industrial agencies in the organization of spraying operations against the spruce budworm in New Brunswick, the jack pine sawfly in Quebec, and the hemlock looper and ambrosia beetle in British Columbia.

Federal-Provincial Forestry Agreements.—The passing of the Canada Forestry Act in 1949 was an event of great significance to federal-provincial relations in the field of forestry, as authority was given to the then Minister of Mines and Resources to "enter into agreements with any province for the protection, development or utilization of forest resources". Subsequently, this Act was repealed and replaced by the Department of Forestry Act, 1960. Since the beginning, agreements have been entered into with most provinces; these now provide for federal financial support for programs of forest inventories and reforestation, for the purchase of capital assets to be used in forest fire protection and for forest access and stand improvement projects.

Under the Department of Forestry Act, a composite forestry agreement was entered into with the provinces for a term of two years ending Mar. 31, 1967. This agreement includes in "a single package" the federal aid available for forest inventories, reforestation, forest fire protection, forest access and stand improvement projects. The composite agreement also gives the provinces considerably greater freedom to allocate funds among the specified fields of work. A total of \$7,910,000 of federal funds is available annually, the allocation to the provinces being in proportion to their productive forest areas.

Federal assistance is based on payment of 50 p.c. of provincial costs, but reforestation is the one exception. The Federal Government pays \$15 per thousand trees planted, \$4 per acre seeded with ground preparation, \$2 per acre seeded without ground preparation, and \$2 per acre for seedbed preparation to promote natural regeneration. In addition, the Federal Government contributes 25 p.c. of the cost of establishing or expanding forest nurseries.

Costs of management-type surveys are included in the new agreement as sharable, and the reforestation of occupied or unoccupied Crown land qualifies for assistance provided it is carried out by the province.

Since 1951, more than \$48,000,000 in federal funds have been contributed to the provinces under the main forestry agreements, plus \$5,613,000 for aerial spraying against budworm infestations in New Brunswick and, on a smaller scale, in British Columbia, and \$643,000 under a special stand improvement agreement with the Province of Nova Scotia, designed to provide woods experience for coal miners laid off in the Cape Breton area.

Work accomplished with federal assistance has included the completion of forest inventories by seven provinces. Most of the provinces have instituted programs concerned with management-type inventories and at the same time are maintaining their initial inventories in a reliable state. As a result of these inventories, new woods operations have sprung up, particularly in the British Columbia interior, and new pulp and paper mills have been built or are planned in other areas of Canada. The Federal Government has contributed under the agreements to the establishment of 16 new forest nurseries and the planting of 265,700,000 trees. Federal contributions of more than \$12,686,000 have been used for the purchase of fire towers, radios, motor vehicles, bulldozers, muskeg tractors, power pumps, hand pumps, hose, aircraft, and the construction of buildings required for the prevention, detection and suppression of forest fires and for the charter of aircraft for patrol, transportation and water-dropping purposes. Several hundred access projects designed to improve protection and permit the management of undeveloped forest areas have been undertaken, with the Federal Government contributing more than \$18,723,000.

Subsection 2.—Provincial Forestry Programs

All forest land in provincial territory, with the exception of the minor portions in National Parks, federal forest experiment stations, military areas and Indian reserves is administered by the respective provincial governments. The forestry program of each province is outlined below.

Newfoundland.—Geographically, the Province of Newfoundland has two separate regions—the Island and Labrador on the mainland. The productive forest land of the

Island is estimated at 12,984 sq. miles and of Labrador at 20,878 sq. miles, a total of 33,862 sq. miles. Most of Labrador's forests are leased but are as yet virtually untouched. Only 578 sq. miles are classified as farm woodlots.

A large part of the forest land in the interior of the Island is leased, licensed or owned by paper companies, but a three-mile-wide belt along most of the coastline is retained as unoccupied Crown land for the purpose of providing firewood, construction material, fencing material, etc., for the local population. Within this coastal forest belt, every household has legal right to cut 2,000 cu. feet of wood a year for domestic use. This form of cutting is generally without intense control or restriction but a policy is being introduced whereby cutting in certain 'management areas' is controlled by forest officers. Approximately one half of the Crown forests are at present under management. Commercial timber-cutting on unoccupied Crown lands has been by permit since 1952; permits for amounts up to 120 cords per person are issued by the field staff but permits for larger quantities must be approved by the government. This type of permit is generally preceded by advertising of standing timber for sale by tender, the timber involved usually being over-mature or damaged by fire, insects or storms.

The Island is divided into three forest regions, each of which is subdivided into five districts. Each region is under the control of a regional forester and each district is headed by a district ranger with a staff of rangers and assistant rangers. Twenty-eight well-equipped forest fire depots and 21 lookout towers, connected by radio-telephone, are operated by the Newfoundland Forest Service; others are operated by the Newfoundland Forest Protection Association, the two paper companies, and the Canadian National Railways. The Forest Service operates four Canso aircraft equipped for water bombing, two helicopters for transporting men and equipment and two Super Cub aircraft for fire detection.

Forestry operations in Labrador are under the supervision of a regional ranger located at Happy Valley (Goose Airport). The permanent staff of about 75 persons is augmented by a like number of seasonal employees during the fire season. Forest fire protection bases are established at Northwest River near Goose Airport and at the Carol Lake mining development area. The two paper companies maintain their own fire protection organizations.

Prince Edward Island.—Almost all of Prince Edward Island's woodland is privately owned, so that the Forestry Division of the Department of Agriculture is concerned mainly with planting, woodlot management and fire protection. A small nursery, established jointly with the Federal Government, deals with the Island's needs by providing planting stock for the reforestation of waste lands, the cost of which is shared by the Federal Government, and fulfilling the requirements of private individuals at a reasonable cost.

In proportion to its size, Prince Edward Island exports a great deal of pulpwood. This export, combined with the fuelwood and lumber cut each year, led to the inauguration of a program designed to educate the owner in the proper care and management of his woodlot.

Fire protection does not usually constitute too great a problem. Wooded areas are scattered in patches throughout the province and, since a network of roads makes all woodlots accessible, equipment can be brought to the scene of a fire quickly and easily. Research is limited mainly to reforestation and woodlot management problems.

Nova Scotia.—The land area of Nova Scotia is 20,402 sq. miles. Of this area 16,274 sq. miles are classed as forested, of which 93 p.c. is regarded as productive. Although 91 p.c. of the forest land in Canada is held by the Crown in the right of the federal and provincial governments, only 22 p.c. is held under the Crown in Nova Scotia.

The provincial Crown lands are administered by the Department of Lands and Forests through a staff of foresters and rangers. Similarly, trained personnel are employed with some of the forest industries in the administration of privately owned forest lands. The

Department administers the Lands and Forests Act as it pertains to all lands and is responsible for forest fire suppression. Forest fire detection is facilitated through 29 observation towers and an aerial patrol service, all integrated with land vehicles and headquarters by radio and telephone communication systems. Fire suppression crews and rangers with equipment are stationed throughout the province.

The forest industry is of prime importance to the economy of Nova Scotia. There are in operation some 500 sawmills of various types and sizes, one newsprint mill, two groundwood pulp mills and a chemical pulp mill; construction of a second chemical pulp mill was under way in mid-1965. These mills, along with the export pulpwood trade and pitprop production, produced about 270,500 M ft. b.m. of sawn materials and about 608,000 cords of round products in 1964. Twenty-six sawmills were equipped for the production of pulp chips from sawmill residue and the equivalent of about 68,000 cords of chips was produced from slabs and edgings.

The reforestation program, which has been active for many years, is being expanded with respect to non-forested land and experimental work on land preparation on fire barrens is being conducted. In 1964, approximately 1,000,000 trees were removed from the six forest nurseries for planting in the field, mostly on non-forested land.

Forest management programs include the construction of access roads into Crown land timber areas and stand improvement under federal-provincial agreements. Timber, pulpwood and Christmas trees are sold through public tender and cutting on Crown land is done under recommendation of district foresters of the Department of Lands and Forests. Management cruises, regeneration studies and experimental cuttings are conducted on Crown lands and an active program of operating these lands under sustained-yield management plans is well under way.

Forest research is carried on by Federal Government agencies and the Nova Scotia Research Foundation. Investigations involve stand improvement, cutting methods, and insect and disease activities. Extension projects include fire prevention, a film program in schools, distribution of information on forest and wildlife conservation, promotion of the Christmas tree industry, woodlot improvement, preparation of material for the mass media, and technical assistance to sawmill operators.

New Brunswick.—Of the total land area of New Brunswick (27,835 sq. miles), approximately 86 p.c. is classed as productive forest, of which the Crown, in right of the province, owns about one half. About 2 p.c. is owned by the Federal Government and the remainder is privately owned. The report of a provincial forest inventory, part of the national forest inventory, was published in 1958. The total volume of wood in merchantable sizes is estimated at 16,900,000,000 cu. feet; coniferous species make up 71 p.c. and deciduous species the remainder.

Protection from forest fires, the first requirement for forest conservation, is mainly the responsibility of the Department of Lands and Mines which also carries out duties in connection with game management and protection, colonization, provincial parks, and the administration of provincial Crown lands. A large-scale aerial spraying program to protect balsam fir and spruce from the spruce budworm has been carried on since 1952 by a Crown company sponsored by the federal and provincial governments and by representatives of the forest products industries. Forest Management Licences issued by the province authorize operators to cut and remove forest products in accordance with forest management plans and cutting permits. Stumpage dues are paid to the province when products are cut by the licensees.

New Brunswick does not maintain a forest research organization but co-operates with the federal Department of Forestry in that field. The University of New Brunswick has also undertaken a small number of forest research projects in co-operation with the National Research Council, the provincial government and other interested organizations.

In the field of education, the University of New Brunswick offers undergraduate and graduate courses in forestry leading to B. Sc.F. and M. Sc.F. degrees. It is also responsible

for the administration of the Maritime Forest Ranger School in conjunction with the governments of New Brunswick and Nova Scotia and with private industry. The forest extension services of the University assist both government and private agencies in the direction and planning of various forestry extension programs. The provincial Department of Agriculture also provides an expanding extension service to the owners of farm woodlots.

Quebec.—The forest lands of the Province of Quebec cover an area of 270,418 sq. miles extending from its southern borders to latitude 52° north, between the frontier of Labrador in the east and the Eastmain River Basin in the west. Of this total, 85,451 sq. miles are classed as occupied productive forest land, where tree-felling is done under lease and permit. The area owned privately covers 25,114 sq. miles and federal Crown forests, 225 sq. miles. Approximately 117,481 sq. miles of the productive forest lands of Quebec are unoccupied. About one third of the annual cut comes from privately owned lands.

The limits reserved for forest industries are administered by the Department of Lands and Forests and the technical work such as inventory, reforestation, supervision of cutting, control of culling, verification of plans for development, collection of stumpage dues, etc., is the responsibility of the Forest Service. These limits are either leased by auction after public notice has been given or assigned under a special law. The price of the licence is fixed by auction or by Order in Council subsequent to specific legislation. The government reserves the right to dispose of any water power available on the limits leased. A tree-felling permit, which is valid for one year, is renewable if the holder has complied with the conditions imposed; it may be transferred with the authorization of the Minister of Lands and Forests. The lessee of a limit must pay a ground rent in addition to the price of licence and must forward, three months before the cutting begins, a plan of operations. Wood cut must be measured by a licensed culler and at the end of the operations the limit holder must produce a sworn statement of quantities cut. The Forest Service endeavours to promote the use of silvicultural methods among the owners of farm woodlots and small forest areas.

Quebec's forest protective system comprises three organizations—the Protective Service, the protective associations and the non-affiliated lease holders or owners. The Protective Service is a government body established within the Department of Lands and Forests in 1924 to enforce legislation and regulations governing forest fire protection and to protect vacant Crown lands, township reserves and colonization territories. The protective associations, of which there are six, are syndicates of lease holders and of owners who have availed themselves of their right to form an association to satisfy the law which compels them to protect their limits or private forests of 2,000 acres or over. Members assume operating expenses in proportion to the area owned by each, but the Department assumes half the costs of fire fighting incurred by the associations. The third group is composed of lease holders and of owners who prefer to discharge their obligations personally as far as forest protection is concerned. They enjoy the same privileges and their obligations are the same as those imposed upon the associations.

To perpetuate the forestry program of the province, the Forestry Department has established a number of nurseries. The first, established at Berthierville in 1908, has three sections—one wooded with a variety of valuable species of mature age, one serving agricultural purposes, and one devoted to forestry experiments and the cultivation of trees for reforestation. The Grandes Piles and New Carlisle nurseries were organized more recently and there are also nurseries in the following counties: Abitibi-Est, Témiscamingue, Îles de la Madeleine, Rimouski, Roberval, Rivière-du-Loup, Témiscouata, Chicoutimi, Abitibi-Ouest, Portneuf and Matapédia. Their object is the preparation of plants for reforesting nearby districts. 'Floating' nurseries, supervised by the engineers of the Forest Extension Bureau and intended especially for growing reforestation plants for private properties, are located at Sweetsburg, St. Pascal, Mont Joli, Baie St. Paul, Pont Rouge, Victoriaville, Scott and Sherbrooke. Plants are supplied free of charge on request. A dynamic reforestation program is now under way in the province, with an ultimate objective for the next ten years of 200,000,000 plants on Crown and private lands.

The Bureau of Silviculture and Botany, an integral part of the Forest Service, is a research organization. At present it is conducting silvicultural experiments in various areas of the province, in natural forests as well as in plantations, to find solutions to the many problems encountered in the work of improving the forest stand. This work is controlled by a network of permanent study points throughout the province. The Bureau has at its disposal a soil and plant tissue analysis laboratory and a forestry pedologist for the study of problems dealing with mineral foods for plantations, reforestation and silviculture.

Ontario.—The management of the forest resources of Ontario is based upon the Crown Timber Act and the management unit is used as the basic administrative area. For each management unit a plan is prepared according to the Manual of Management Plan Requirements and is submitted to the Minister of Lands and Forests for analysis and approval. All forest activities contemplated during the operating period—cutting, re-establishment and tending—are listed in detail in the operating plan, which is part of and carries out the intent of the management plan. Management plans are revised every 20 years on the up-to-date data of new aerial photographs and a forest re-inventory. The number of management units is subject to change at the time of plan revision owing to abandonment or acquisition of timber licences and to division or consolidation of management units. During 1964, 213 management units, classified by ownership and the rights to timber, were recognized: 81 Crown management units, 71 company management units, 56 agreement forest units, and five nursery forest units. The 81 Crown management units for which the plans are prepared by Department staff occupy 55,999,775 acres; of these, one is operating under a revised plan, 22 are undergoing scheduled plan revision, 56 are operating under the initial plan, and two new units are not under management plans. The 71 company management units for which the management plans are prepared by the licensees occupy 64,304,896 acres; of these, 50 are operating under approved management plans and 21 are either in the process of revision or initial preparation. The plans for the 56 agreement forest units are scheduled for preparation over an eight-year period. The plans for the five nursery forests adjacent to the forest tree nurseries operated by the Department cover approximately 9,000 acres, and will be prepared by the Department staff on completion of the inventory program.

On Crown lands during 1964, 132 stand improvement projects were carried out on a gross area of 33,143 acres. These projects were designed to secure adequate regeneration following cutting operations or to improve growth and quality of young stands of timber. In addition, 26 stand improvement projects, covering 2,394 acres, were carried out by junior rangers during the course of their summer training. During the year, on Crown lands and agreement forests, 34,752,000 trees were planted on 63,507 acres, and a further 3,789 acres were seeded. Stand improvement work was carried out on 7,312 acres of 40 agreement forests, including harvest cutting, cleaning, pruning, thinning and girdling. In addition to normal woods labour, over 7,800 man-days of inmate labour from five minimum security camps (see p. 435) were used on stand improvement projects in Crown and agreement forest units.

Forest research programs in silviculture, site, tree breeding, reforestation, mensuration and mechanics were continued and advances were made in site studies for the classification of forest land which have now been extended to the operations of the Agricultural Rehabilitation and Development Act (ARDA). The success of experiments with the use of plastic tubes of 0.5 in. in diameter for the production of seedlings for outplanting has resulted in large-scale use of this method for pine species and is under investigation for spruce.

The results of work in forest fertilization and in prescribed burning in hardwoods indicate that fertilizing may be an economic way of shortening the rotation or increasing the yield of plantations or natural forest, and that burning may assist in the conversion of low-quality hardwood stands to those of better potential. A new type of aerial seeder to sow tree seeds from a helicopter was designed and successfully tested. The completion of a test of timber cruising and log scaling as a means of measuring the volume of forest

products shows the former to have considerable merit from the standpoint of cost and convenience. Tests in the lubrication of high-speed fire-pumps showed that the use of naphthenic base oils, instead of paraffin base oils, could increase considerably the service life of the motor. Additives are now being produced by oil companies that give almost equivalent results when used with paraffin base oils.

Three four-week fire control training courses were conducted in 1964, training 60 instructors and bringing the total of those completing the course to 167; for the first time, the attendance included out-of-the-province students and woods industry personnel. During the year, 500 Indians were given a four- to seven-day course in fire fighting.

All ten Department Otter aircraft have been equipped with a new 200-gal. water-dropping tank suspended under the fuselage. A similar type of tank is being designed for the Department's Beaver aircraft.

Manitoba.—The central administration of Manitoba's forests is organized into two Branches—Forest Management and Forest Protection. Each is in charge of a director and is a Branch of the Department of Mines and Natural Resources. The province is divided into eight regions, each under a regional supervisor who is responsible to the Directors of the Management and Protection Branches.

The Management Branch co-ordinates control measures for the propagation, improvement and management of the forests, the harvest of forest products, and forest inventory surveys. Two nursery stations are maintained to supply stock for reforestation of denuded Crown land and some natural seed areas have been established for nursery stock. Seedlings are supplied to farmers for shelterbelts and woodlots and to commercial Christmas tree producers. The program of forest stand improvement comprises thinning, clearing and chemical spraying to remove undesirable species and encourage growth of preferred trees. Forest inventories cover 3,000 to 4,000 sq. miles annually and on the basis of these inventories working plans with annual allowable cuts on a sustained yield basis have been brought into operation.

Timber cutting rights are awarded by Forest Management Licences, Timber Sales and, in certain cases (particularly for salvage operations), by Timber Permits. Forest Management Licences may be granted for periods of up to 20 years and are renewable. Timber Sales may be for varying periods from one year upward and Timber Permits for periods of up to one year. At present, one long-term Pulpwood Berth with an area of 2,745 sq. miles and 12 long-term Timber Berths, all granted prior to 1930, are in force.

The area of the province under forest fire protection is 120,000 sq. miles with zones of priority established in the less accessible areas. Fires are detected through a comprehensive network of lookout towers and supporting air and ground patrols, all tied together by radio and departmental or public telephones. Two Canso water-bombers and two helicopters are rented for the worst of the fire season to back up the aircraft of the Manitoba Government Air Service.

The province has no forestry research organization but co-operates with several federal services which maintain two research areas. The Department co-operates fully with federal authorities in investigating and controlling forest damage resulting from insects and diseases. Public education in the fields of fire prevention and forest conservation is carried out and use is made of all usual methods including radio, television, newspapers, signs, talks to school children and club members, film tours, etc.

Saskatchewan.—The forests of Saskatchewan are located mainly in the northern half of the province and cover 117,738 sq. miles, or 53 p.c. of the total land area. Provincial forests constitute approximately 92 p.c. of all forest land in the province and are managed and developed by the Forestry Branch of the Department of Natural Resources.

The Forestry Branch, consisting of six divisions—Administration, Fire Control, Forest Management, Forest Research, Inventory and Silviculture—is responsible for developing and evaluating forest policies and management programs based on the findings of

inventory and research. The responsibility for carrying out such policies and programs is borne by the various regional administrative authorities. For purposes of resource administration, the province, with the exception of the most northern portion, is divided into four regions, each under the supervision of a regional superintendent. The regions are subdivided into conservation officer districts which vary in size according to resource base and population to be served. In the most northern part of the province, because of various special programs with northern residents, resource administration is the responsibility of the Northern Affairs Branch of the same Department. Close liaison is maintained between the Forestry Branch and the various regional authorities.

A major responsibility of the Forestry Branch is the development of techniques in the prevention, detection and suppression of forest fires. A network of 72 lookout towers equipped with two-way radios is maintained throughout the province and is supplemented by three aircraft on regular patrol duty during the high-hazard periods. A group of smoke-jumpers, trained to parachute on remote fires, is in constant readiness during the fire season and, if necessary, takes immediate suppression action which it maintains until relieved by overland crews. Northern Saskatchewan's communication system, with more than 895 two-way radio sets in operation in towers, vehicles, aircraft and forest camps, plays a vital role in the detection and suppression of forest fires. These activities are assisted by the use of helicopters and aircraft equipped for water-dropping.

Alberta.—The 157,595 sq. miles of provincial forest in Alberta are administered by the Alberta Forest Service of the Department of Lands and Forests at Edmonton. The Service, headed by the Director of Forestry, is composed of five Branches—Administration, Forest Protection, Forest Management, Forest Surveys, and Planning and Forestry Training.

For ease of administration the forest area has been divided into eleven Forests, each responsible for the forest within its boundaries. These Forests are composed of Ranger Districts in which all activities are supervised by the district forest officer responsible to his superintendent. The Forest staffs include: forest superintendent, fire control officer, forester, chief ranger, mechanical foreman, carpenter foreman, equipment operators, scalers, land-use officers, radio operators, clerks, stenographers, and seasonal help such as standby fire crews, lookout men, general labourers and construction crews. Some Forests have minimum security crews that are employed in forest management, protection and construction projects.

The Administration Branch supervises all branches, maintains general control over revenue and expenditure, maintains the equipment inventory and deals with personnel.

The Forest Protection Branch has charge of all phases of protection including prevention, detection, suppression and use of forest and prairie fires. The Branch also plans, supervises and executes the construction and maintenance of the road and building programs and supervises the radio communication facilities.

The functions of the Forest Management Branch include the acceptance and approval of management and annual operating plans prepared for leased and licensed Crown lands, implementation of management plans prepared by the Department, supervision of proper land-use practices and the disposal of Crown timber. This extends to all phases including the processing of timber applications, selection of timber to be sold, the cruising of merchantable timber, inspections of cutting areas to ensure proper logging and utilization practices, scaling of forest products, collection of dues and fees and the reforestation programs for areas denuded by cutting and fire.

The Forest Surveys and Planning Branch maintains the provincial forest inventory and prepares and maintains detailed inventories by management units; prepares long- and short-term management and protection plans; provides timber application forest-type maps; conducts other work pertaining to photogrammetry and forest-cover maps; develops

and supervises recreational area plans; provides regulation of geophysical activities in the forest area; and provides technical drafting and mapping services to the Forest Service and the general public.

The Forestry Training Branch prepares training material and conducts training programs for Departmental personnel and other persons concerned with activities of fire control, forest management, forest protection and conservation. The Branch also organizes and supervises the activities of the Junior Forest Warden Clubs.

Two Forests and part of a third are included in the Rocky Mountains Forest Reserve. This area is administered by the Alberta Forest Service but decisions of the Director of Forestry are based on policies of wise watershed regulation formed by the Eastern Rockies Forest Conservation Board. The Board comprises one federal and two provincial members. This reserve includes part of the headwaters of the main prairie provinces river system. Research in general is carried out by the federal Department of Forestry, which maintains the Kananaskis Experiment Station.

British Columbia.—The productive forest land of British Columbia in 1958 was inventoried at 208,411 sq. miles and, in addition, there were 59,227 sq. miles of forest land classed as non-productive. Of the productive area, immature timber occurred on 95,739 sq. miles; 84,275 sq. miles carried matured timber with a total volume of 251,000,000,000 cu. feet; 28,397 sq. miles, including areas of recent burn, cut-over or windfall not yet re-stocked, were unclassified.

For administrative purposes, the province is divided into five Forest Districts with regional headquarters at Vancouver, Prince Rupert, Prince George, Kamloops and Nelson; a sixth District was established at Williams Lake but was not operational in 1965. Further decentralization of authority is effected by subdivision of the Forest Districts into Ranger Districts. There are approximately 25 Ranger Districts in each Forest District. Twelve directional, servicing or policy-forming divisions constitute the head office of the Forest Service at Victoria.

Efforts continue to bring British Columbia's forest resources under sustained-yield management and the forest industries are making progress toward more complete utilization of their raw materials. The problem is urgent despite the fact that, with a present annual scale of approximately 1,515,000,000 cu. feet, the total inventory would appear sufficient to support present needs in perpetuity. One of the more spectacular results of sustained-yield administration has been the swinging of a greater proportion of the annual forest harvest to the interior of the province. The over-cut coast (wet belt) forests now account for about 55 p.c. of the total forest cut each year and the interior cut for 45 p.c. For all practical purposes, the entire interior forest is publicly owned; the great majority of privately owned, leased or licensed forests are on the coast.

Several systems of timber disposal are in effect. The most publicized is the Tree Farm Licence, which constitutes a contract between the government and a company or individual whereby the latter agrees to manage, protect and harvest an area of forest land for the best possible return, in exchange for the right to the timber crop on the area. Tree Farm Licences are subject to re-examination for renewal every 21 years. Provincial Forests, Public Working Circles and Sustained-Yield Units are the governmental equivalent of the Tree Farm Licence with the timber, when it is ready for cutting, being disposed of by public auction. Of major interest is the establishment of the first "pulp harvesting" area in the vicinity of Prince George. This plan is unique in North America, calling for the integration of a "saw-log" economy with a new pulp industry. Management, silviculture, roadbuilding and protection on such areas are the responsibility of the Forest Service. Other tenures of lesser importance are Tree Farms, Farm Woodlot Licences, and those Timber Sales issued outside 'regulated' areas.

Forest fire prevention techniques and organization for effective forest fire suppression are important aspects of planned, sustained-yield management of the forest resource, and these are constantly under review by the Forest Service. Although the Forest Service

does not operate its own fleet of aircraft, extensive use is made of air tankers, patrol and reconnaissance aircraft, and helicopters under seasonal contracts. The predominantly rugged topography of the province and its extensive sparsely populated areas present problems in fire detection and accessibility to fires, and aircraft are playing an increasingly important part in the key initial discovery and attack period by supplementing the fixed lookout system and ground suppression organization. Close liaison with the federal Department of Forestry, which maintains laboratories in Vernon and Victoria, provides information about insect and fungal enemies of the forest.

Subsection 3.—The Pulp and Paper Research Institute of Canada*

The Pulp and Paper Research Institute of Canada is a centre of research and learning concerned with virtually every aspect of the production and use of pulp and paper products. It was established in 1913 as a branch of the Dominion Forest Products Laboratories and in 1927 was reorganized under the joint sponsorship of the Canadian Pulp and Paper Association, the Federal Government and McGill University. The Institute staff carries out fundamental research and some applied research in the fields of woodland operations and pulp and paper mill operations. In addition, in co-operation with McGill University, it trains postgraduate students who are working toward master's and doctorate degrees in physical chemistry, wood chemistry, or chemical and mechanical engineering, and whose theses subjects lie in fields of interest to the pulp and paper industry.

The Institute occupies a building on the McGill campus erected by the pulp and paper industry and a building at Pointe Claire on the western outskirts of Montreal constructed by the Government of Canada. The Institute's facilities include: organic and physical chemistry, physics, hydraulics and engineering laboratories; pilot plants for chemical pulping, pulp and chip refining and waste liquor pyrolysis; a greenhouse and other facilities for woodlands research; an extensive library; shops and special facilities for pulp and paper testing and for photographic and microscopic (both light and electron) studies of wood, pulp and paper. It has a staff of about 195.

The Institute's research activities comprise a basic program in pulp and paper research and in woodlands research, contract research, and technical services. The basic pulp and paper research program is supported by assessments from the Maintaining Membership (some 42 companies, representing more than 100 mills and about 95 p.c. of the total production of the Canadian industry) and by a grant from the Canadian Pulp and Paper Association. The woodlands research program is supported by assessments on all member companies of the Canadian Pulp and Paper Association east of the Rockies that use pulpwood and by a grant from the Association. Both programs comprise research of interest to the industry broadly, as distinct from that which is the concern of a single company only.

The projects in the basic programs range from studies of the growing seedling in the forest to the converted pulp and paper product, and fall into seven broad classifications: woodlands, mechanical pulping, chemical pulping, paper making, process control, product quality and waste utilization. The Institute is regarded as a centre for broad, long-range and uninterrupted studies of basic principles and for major engineering research and development projects which individual pulp and paper companies would find difficult to justify if the costs were not shared. Moreover, the Institute is a centre of highly specialized equipment and manpower which individual companies would not normally have.

In addition to its permanent staff, the Institute, in co-operation with McGill University, has some 40 graduate students working on fundamental projects in the background of pulp and paper technology, which also serve as their theses topics. The head of the Institute's Wood Chemistry Division, who is also Chairman of the Chemistry Department and the E. B. Eddy Professor of Industrial and Cellulose Chemistry at McGill, directs graduate student work on such subjects as the behaviour of the materials of which wood is made—cellulose, lignin and hemicelluloses. The head of the Institute's Physical Chemistry Division, also a Research Associate in the McGill Chemistry Department, directs

* Prepared by B. W. Burgess, Secretary, Pulp and Paper Research Institute of Canada, Montreal, Que.

graduate student work in the physical chemistry of fibres, e.g., the forces that cause cellulose fibres in a water suspension to mat together to form paper. An Associate Professor of Chemical Engineering at McGill, who is a consultant to the Institute, directs graduate students in such chemical studies as the rate of drying of droplets and fibres. In addition, other members of the Institute's staff who likewise hold concurrent honorary positions at McGill assist in this student training program.

The Institute also undertakes contract research projects on a cost-reimbursement basis for individual companies or groups of companies in the pulp and paper or allied fields. The larger of these co-operative contracts have been concerned with problems of particular segments of the Canadian pulp and paper industry, such as the investigation into the causes of corrosion in alkaline pulping equipment and the study of the rapid deterioration of paper machine wires.

A further function of the Institute is to provide a broad range of technical information services to the industry and, to some extent, to other industries and the public. It maintains a specialized library for this purpose which stocks bibliographies, abstracts, translations and critical reviews for the use of the scientific staff and the industry.

CHAPTER XIII.—MINES AND MINERALS

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

Section 1.—Canada's Mineral Industry, 1963-64*

The Canadian mineral industry in 1964 continued its record of production, expansion and diversification that has been such a strong factor in Canada's economic growth. Value of production rose 11.3 p.c. to a new high of \$3,397,000,000 from the previous peak of \$3,050,000,000 established in 1963. The high rate of advance, compared with advances of 4 to 8 p.c. each year since 1958, was the result of several factors—the first full year's production from several large mining projects, the start of production from other undertakings, the continuing buoyancy of the economies of major industrial nations, generally higher mineral and metal prices, and the strong competitive position of Canadian minerals and metals in most market areas.

The Canadian mineral industry is strongly export-oriented, about 60 p.c. of its output going to foreign countries. About 80 p.c. of mineral and metal exports go to the United States and nearly all of the remainder to Britain, Western Europe and Japan. Of total merchandise exports in 1963 valued at nearly \$9,800,000,000, \$2,243,000,000 were minerals and metals; of total exports in 1964 amounting to \$8,095,000,000, \$2,585,000,000 were minerals and metals. The mineral industry continues to be of first importance in helping to maintain and improve Canada's favourable balance-of-trade position. The growth of the mineral industry is most properly measured by the rise in the quantity index of mineral production which reached 326.5 (1949=100) from 294.4 in 1963. The metals index was 210.7 compared with 193.8 in 1963; the industrial minerals index rose from 228.1 to 324.9†, and the mineral fuels index again advanced sharply from 513.6 to 554.7. The per capita value of mineral production increased to \$176.61 from \$161.43. Capital investment and repair expenditures in the mineral industry were at an all-time high of \$794,000,000,

* Prepared under the direction of Dr. W. E. van Steenburgh, Deputy Minister of Mines and Technical Surveys, Ottawa, in the following Divisions: Introduction and Subsections 1 and 3 by the Mineral Resources Division; Subsection 2 by the Mineral Processing Division, Mines Branch; and Subsection 4 by the Fuels and Mining Practice Division, Mines Branch. Figures for 1964, except those in Subsection 4 on coal, are preliminary.

† See footnote 2 Table 8, p. 588.

up from \$678,000,000 in 1963. Estimates for 1965 capital investment and repair expenditures for the mineral industry at \$725,000,000 indicate that the strong growth experienced in recent years will continue.

However, expenditures on mining, quarrying and oil and gas wells, and value of mineral output do not wholly reflect the importance of the mineral industry to the nation's total economy. Such figures do not include expenditures in the many areas allied directly with the mineral industry such as primary facilities for metal recovery, nor do they include the large expenditures made for railroads, roads, docks, power developments and other projects that are directly attributable to mining developments. Neither do they indicate all the indirect employment in the allied, ancillary and service industries that is directly and indirectly related to mining developments. Such employment has been estimated to range from six to 10 persons for each person directly employed in mining, the estimate varying with the type of mining development. Mining is also responsible for opening up vast new areas to further mineral discoveries and settlement, providing diversified employment through tourism, forest operations, fishing and all other attendant service requirements. Mining has been responsible for all railway building in Canada since World War II and for many of the hydro-electric power developments.

Each of the three sectors of the industry—metallics, industrial minerals and mineral fuels—recorded a new high in 1964, the metallics sector registering the strongest advance both in absolute and percentage terms. Metallic minerals output was valued at \$1,704,600,000, up from \$1,509,500,000 the previous year. Shipments of industrial minerals, which include non-metallics and structural materials, were worth \$687,300,000 compared with \$632,500,000 in 1963. Mineral fuels production increased in value to \$1,005,200,000 from \$908,400,000. This was the first year that mineral fuels production was valued over \$1,000,000,000. In 1950, the output of the whole mineral industry for the first time reached a total value of \$1,000,000,000 and in that year mineral fuels were valued at only \$200,000,000. In 1964, Canada ranked first in world mine production of zinc for the first time, and this was the first year that iron ore was Canada's leading metallic mineral, displacing nickel.

The ten leading minerals in terms of value of output again accounted for about 80 p.c. of total output, essentially the same as for several years previously. Production values were appreciably higher for iron ore, zinc, copper, lead, natural gas and crude petroleum; small advances were made in nickel, asbestos, titanium dioxide and structural materials. Value of uranium (U_3O_8) shipments and gold production declined. The leading mineral commodities in value of output were crude petroleum, \$674,000,000; iron ore, \$403,000,000; nickel, \$382,000,000; copper, \$328,000,000; zinc, \$193,000,000; natural gas, \$184,000,000; asbestos, \$148,000,000; gold, \$144,000,000, and cement, \$133,000,000. Canada leads the non-communist world in the production of nickel, zinc, asbestos, platinum metals and columbium; is second in gold, uranium cobalt, cadmium and titanium; is third in sulphur, gypsum, magnesium and lead; and ranks high among world producers of copper, iron ore, silver and molybdenum.

Ontario remained Canada's leading mineral-producing province, output at \$911,000,000 being 26.8 p.c. of Canada's total. It was followed in order by Alberta with 22.0 p.c., Quebec with 19.8 p.c., Saskatchewan with 8.2 p.c., British Columbia with 7.9 p.c. and Newfoundland with 5.7 p.c. Mineral production gains were recorded for all ten provinces and the two territories with Quebec registering the strongest advance to \$672,000,000 from \$541,000,000. Ontario's percentage of Canada's total mineral production has been declining steadily for the past few years. Newfoundland, along with Quebec, registered a strong absolute and percentage gain over 1963, and Alberta, British Columbia, Saskatchewan and Manitoba all registered minor percentage losses although the value of output in each of them increased.

Exploration activity continued to be widespread and diversified in 1964 and several important discoveries were reported. Development of properties for early production was under way in all mineral-producing provinces and in the territories and it is noteworthy that

mineral discoveries and mine development programs were taking place in long-established mining areas as well as in the more remote parts of the country. Developments taking place in connection with the major mineral commodities are reviewed in succeeding Sub-sections but highlights of the year, by region, are mentioned briefly here. In British Columbia, the year was noteworthy because of the developments that took place in the non-ferrous minerals industry and the promise of greatly increased production of iron ore and molybdenum. Copper production, most of which is exported to Japan as concentrates, set a new high with production coming from several new operations and from established producers. There was higher output of lead and zinc, most of which is refined in the province. There were announcements of plans by large companies to develop substantial deposits of molybdenite for 1965-66 production which will make Canada the world's second largest producer of this important ferro-alloy material.

In the Prairie Provinces output of petroleum, natural gas and sulphur recovered from petroleum, and potash set new records. Potash deposits of Saskatchewan were being prepared for production by four companies whose output, plus that of two others already in production, will amount to between 4,000,000 and 5,000,000 tons in 1967. By 1970 Canada will probably be the world's most important producer of potash, an essential ingredient of manufactured fertilizers. The International Nickel Company of Canada, Limited is developing its Birchtree nickel deposit south of Thompson, Man., for 1968 production, to supplement output from its Thompson mine.

In the Northwest Territories, Pine Point Mines Limited commenced shipments in November of high-grade lead-zinc ore from substantial deposits at Pine Point on the south shore of Great Slave Lake. Shipments were made over the recently completed 430-mile railway to Grimshaw, Alta., and thence to Kimberley, B.C., for treatment. A new lode gold mine began operations in March 1964. In the Yukon Territory, Cassiar Asbestos Corporation Limited announced that it would develop, for 1968 production, good grade asbestos deposits some 120 miles northwest of Whitehorse.

In Ontario, near Timmins, Texas Gulf Sulphur Company continued development of its large zinc-copper-silver deposit discovered in 1964. The Company is developing an open-pit mine and will build a 6,000-ton-a-day concentrator with production scheduled for late 1966; reported reserves at the end of the year were 55,000,000 tons of ore averaging 7.08 p.c. zinc, 1.33 p.c. copper, and 4.85 oz. of silver per ton. Jones & Laughlin Steel Corporation commenced production of iron ore pellets from its Adams mine near Kirkland Lake; Caland Ore Company Limited started construction of its 1-million-ton-a-year pellet plant at Steep Rock Lake, and Strathgami Mines, Inc. began development of its iron ore property near Temagami for production of 1,500,000 tons of pellets a year. In the Sudbury area, development of nickel-copper mines continued as demand for nickel is expected to increase, and orderly development of indicated reserves is necessary for long-range planning of production.

Quebec's mineral industry continued to expand and set new production records. Iron ore, copper, asbestos, lead and zinc outputs were at all-time highs. The zinc-copper mines of the Matagami area completed their first full year of operation. New copper mines began production in the Noranda area and the capacity of the Valleyfield zinc refinery, which began operations in 1963, was being increased to 84,000 tons of electrolytic zinc a year. Arnaud Pellets 4,900,000-ton-a-year iron ore pellet plant at Pointe Noire was completed and being tuned up at the year-end. Concentrates for it will come from an associate company, Wabush Mines, at Lake Wabush, Labrador, the capacity of which is 5,500,000 tons of iron ore concentrates a year.

In New Brunswick, Brunswick Mining and Smelting Company Limited announced the expansion of base-metal operations, primarily zinc and lead, in the Bathurst area and the building, with other interests, of a large \$117,000,000 complex embracing chemical-manufactured fertilizer-steel-base metal production facilities. These will provide the province with a strong industrial base from which further industries will develop. The

Company's 4,500-ton-a-day mill is being expanded to treat 6,000 tons a day. It will open two new mines near Bathurst and continue construction of its zinc-lead blast-furnace plant at Belledune Point.

Production of industrial minerals in Nova Scotia continued a steady year-to-year growth, with gypsum, salt and barite being the leading minerals in value of output. Newfoundland continued to make large mineral production gains with iron ore, copper, lead and zinc being produced in record quantities.

Canada is the world's largest diversified exporter of minerals and metals, and follows the United States and the Soviet Union as a mineral-producing nation. The strong position it holds will continue and perhaps be improved as large deposits under development for several years reach production and as many smaller deposits continue to be developed for production each year. In addition to its prominent and sometimes dominant position in nickel, asbestos, zinc and uranium, it will become a very important world producer of a number of other mineral commodities, particularly potash and sulphur, as the mineral industry base becomes even more diversified. Much of the country's mineral-bearing lands, particularly in the northern two thirds of the country, remain virtually unexplored. This area should be no less productive of mineral wealth than the southern third, where important deposits are still being discovered and where much of the area remains to be intensively prospected.

The outlook for 1965 is one of continuing strong advances in all sectors of the mineral industry, at least comparable to those of 1964. Several important projects under development for some time will reach production in 1965 to help boost value of shipments of certain commodities to new records. They include the large lead-zinc deposits at Pine Point in the Northwest Territories; the 5,300,000-ton-a-year iron ore project of Wabush Mines in Labrador; copper production from new mines in all copper-producing provinces; increased output of potash in Saskatchewan and of elemental sulphur from gas processing in Alberta; the start of major molybdenite production in British Columbia; and steadily increasing output of crude petroleum and natural gas in Western Canada.

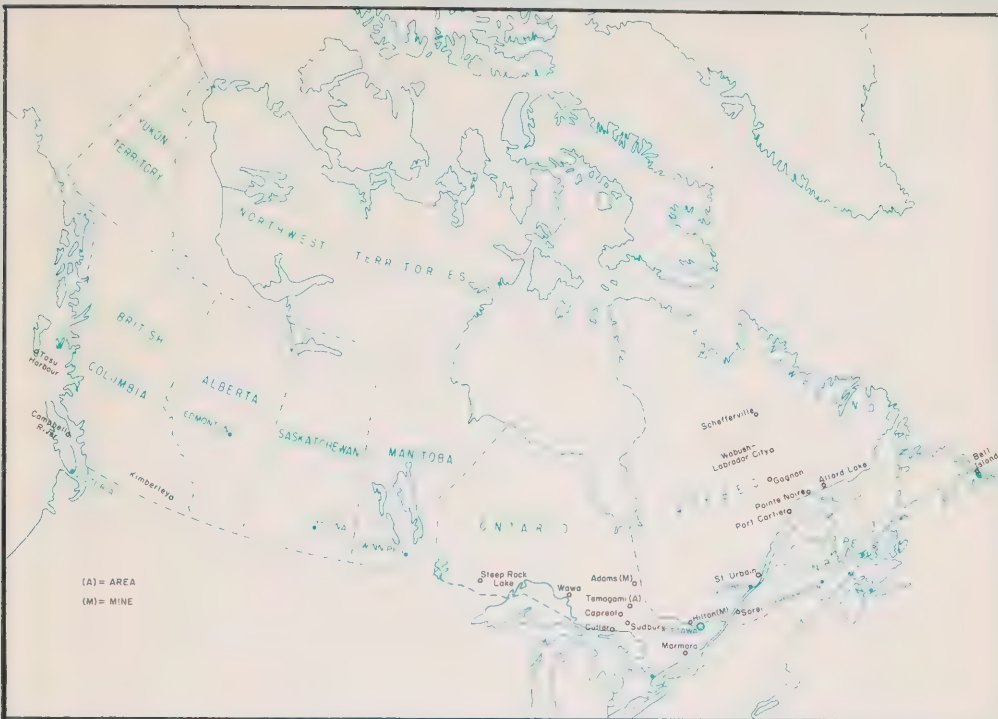
Competition for mineral products in major markets are, in many instances, becoming more severe each year. Notwithstanding considerably higher base-metal prices toward the end of 1964 and apparent shortages of lead, zinc and copper, mine development programs under way in many parts of the world will ensure adequate supplies in the near future so that further significant price increases are not likely to occur. From the many new and expanded mining operations in view in Canada over the next several years, coupled with buoyant conditions in the industrial economies of the world with consequent high demand for minerals and metals, the value of mineral production in Canada should reach \$1,000,000,000 a year in 1967, perhaps in 1966, and should approach the \$5,000,000,000-level in 1970. The future of Canada's mineral industry is one of growing importance to the country's economic well-being, and promises to become an ever-increasing factor in the economic, industrial and geographical development of the nation.

Subsection 1.—Metals

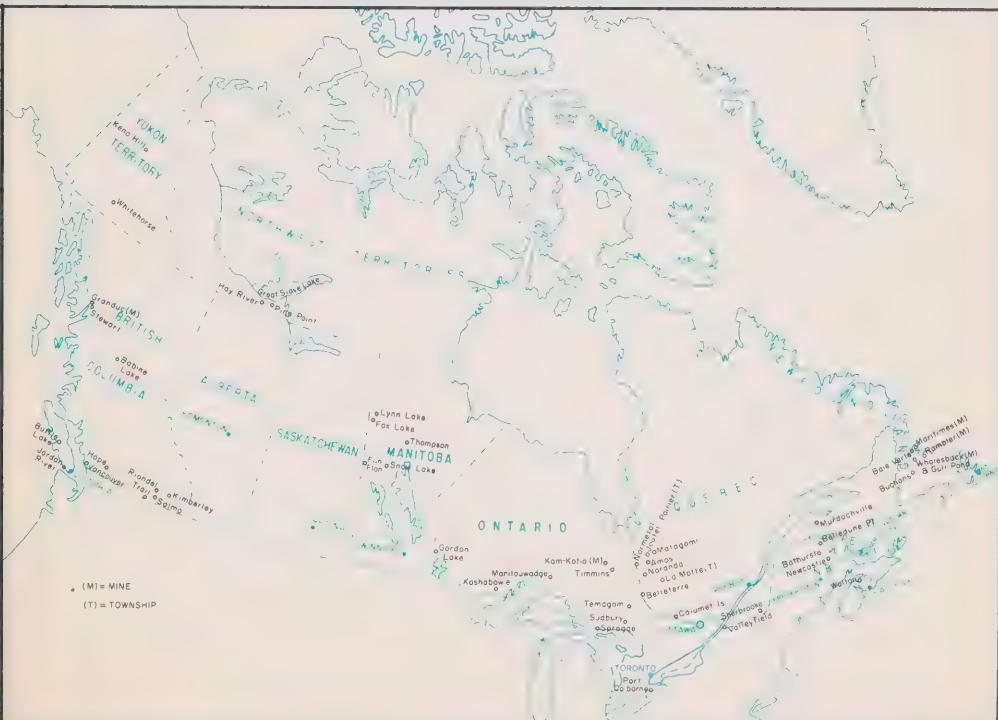
Iron Ore.—The Canadian iron ore industry experienced its third consecutive record year in 1964; shipments were 38,664,583 short tons, up 22 p.c. from 1963. The gain was largely the result of higher steel production rates in the United States. All four producing provinces and nearly all producers, including those that ship medium-grade ores, shared in the increase. Although shipments from British Columbia increased, the dollar value fell slightly from 1963 because of increasing price competition in the Japanese iron ore market. This resulted in lower prices on recent sales contracts. Because sales of medium-grade ores are expected to decline in future years, research on beneficiating them continued. Research has also been directed recently toward producing a partially reduced product in pellet form for use in blast furnaces.

There are five main market areas for Canadian ores—Canada, the United States, Britain, Japan and Western Europe. Shipments to domestic steel plants increased

IRON AND TITANIUM ORE REFERENCES



NON-FERROUS METALLIC ORE REFERENCES



slightly and imports, mainly from the United States, decreased; domestic ore accounted for 44 p.c. of Canadian consumption compared with 36 p.c. in 1963. Canadian steel companies import ore from the United States because they either participated in the development of mines there or established commercial ties with United States merchant companies prior to 1950, when little ore was mined in Canada. However, several domestic steel companies have recently participated in new mining ventures in Labrador and Ontario, and other similar investments in Canadian iron mines are being considered. By 1970, imports should account for no more than 10 p.c. of domestic iron ore consumption.

Shipments to the United States, by far Canada's largest market, rose by 6,500,000 tons in 1964, and United States sales accounted for 72 p.c. of total Canadian iron ore shipments. Canada supplied 59 p.c. of that country's imports. United States imports from other countries rose by about 3,000,000 tons. Canadian iron ore exports to Britain were also substantially higher in 1964, mainly because of accelerated sales of high-grade pellets and concentrates which began in 1963; shipments of medium-grade ore increased slightly. Exports to both Japan and Western Europe were lower in 1964 than in 1963. Sales to Japan should recover in 1965. In Western Europe, Canadian ore producers have been meeting increasing competition from mines in Africa and South America. Canada may experience increased sales of high-grade concentrates and pellets to Western Europe in the next few years; in past years, nearly all European sales were of medium-grade ore. European steel production recovered strongly in 1964 after a period of stagnation following the high-growth years of the late 1950's.

In 1964, 15 companies were directly engaged in iron mining—one on the Island of Newfoundland, one with mines in both Newfoundland-Labrador and Quebec, two in Quebec, six in Ontario, and five in British Columbia. Two other mines in British Columbia made small shipments from stockpile. In addition, four companies shipped iron ore produced as a by-product of base-metal operations. Iron Ore Company of Canada, with direct-shipping ore deposits astride the Labrador-Quebec border at Schefferville (Que.), and concentrating-grade deposits near Labrador City (Nfld.), is the largest producer, accounting for 41 p.c. of 1964 shipments. Wabana Mines of Dosco Industries Limited, producing medium-grade sized concentrate from an underground mine on Bell Island, Nfld., accounted for 3.6 p.c. of the year's shipments. Quebec Cartier Mining Company's shipments of high-grade concentrate from its operations at Gagnon, Que., made up 26.4 p.c. of 1964 shipments, making it Canada's second largest producer; and high-grade pellets from Hilton Mines, Ltd. near Shawville, Que., accounted for another 2.6 p.c. In Ontario, Algoma Ore Properties Division of The Algoma Steel Corporation, Limited, operates mines and a sinter plant at Wawa and accounted for 5.2 p.c. Shipments of high-grade pellets by Marmoraton Mining Company, Ltd. at Marmora, and Lowphos Ore, Limited near Capreol made up 1.6 p.c. and 1.8 p.c., respectively, of Canada's 1964 total. In the Steep Rock area, Caland Ore Company Limited, Steep Rock Iron Mines Limited and Oglebay Norton Co. (Canadian Charleson Mine), producing medium-grade, direct-shipping ore and concentrate, accounted for 5.8 p.c., 3.8 p.c. and 0.5 p.c., respectively, of Canadian shipments. The five British Columbia producers, plus the two that shipped from stockpile, together shipped 5.1 p.c. of the total. By-product iron ore was produced by Consolidated Mining and Smelting Company of Canada Limited at Kimberley, B.C., and by The International Nickel Company of Canada, Limited and Falconbridge Nickel Mines, Limited in the Sudbury area. Noranda Mines, Limited shipped from stockpile at Cutler, Ont.

In 1964 several companies were preparing for iron production. In Newfoundland-Labrador, Wabush Mines neared completion of its mine and concentrator, scheduled to begin production at a designed annual capacity of 5,300,000 long tons of concentrate in 1965. An associated company, Arnaud Pellets, neared completion of a 4,900,000-ton-a-year pelletizing plant at Pointe Noire, Que., also to begin production in 1965. Jones & Laughlin Steel Corporation began production at its 1,250,000-ton-a-year pellet project at Kirkland Lake, Ont., early in 1965. A new iron mining project, similar to Jones & Laughlin's, was announced for the Temagami area, 60 miles north of North Bay, Ont.

It will have an annual capacity of 1,000,000 tons of high-grade pellets and will be 90 p.c. owned by Dominion Foundries and Steel, Limited of Hamilton, Ont. In British Columbia, Empire Development Company, Limited was preparing to resume production, and a new mine was being developed near Campbell River by Orecan Mines Limited; both should be producing in 1965. Wesfrob Mines Ltd. continued development of its iron-copper mine at Tasu Harbour on the Queen Charlotte Islands. This property will begin production of magnetite concentrates late in 1967 at an annual rate of nearly 1,000,000 tons. Several other pelletizing and mining projects were under active consideration, thus promising continued growth of the Canadian iron ore industry.

Nickel.—Canadian nickel production during 1964 was 232,875 tons valued at \$381,996,719, slightly more than in 1963. Canada is traditionally the world's leading supplier of nickel and accounts for about 80 p.c. of the non-communist world production. The leading producers—The International Nickel Company of Canada, Limited, Falconbridge Nickel Mines, Limited, and Sherritt Gordon Mines, Limited—are among the world's largest.

Near Sudbury in Ontario, International Nickel operated seven mines—the Creighton, Frood-Stobie, Garson, Levack, Murray and Crean Hill underground mines and the Clarabelle open pit. Also near Sudbury, Falconbridge operated five mines—Falconbridge, East, Hardy, Onaping and Fecunis.

In Manitoba, the Lynn Lake mine of Sherritt Gordon Mines, Limited operated at 3,900 tons daily. Nickel matte was imported to permit the Fort Saskatchewan, Alta., refinery to operate at full capacity of 14,000 tons. The company had a good market for its nickel products sold in briquette and powder forms. At the Thompson mine of International Nickel, a service shaft on the edge of Thompson Lake was being sunk and, five miles to the south, two shafts were being sunk on the Birchtree deposit, with production expected in 1968. The production capacity of International Nickel in Ontario and Manitoba is now some 225,000 tons of nickel annually. By 1967, Falconbridge will have a capacity of 50,000 tons.

Several smaller nickel mining operations made good progress in 1964. The Gordon Lake mine of Metal Mines Limited in northwestern Ontario produced about 525 tons of ore a day; a bulk nickel-copper concentrate is transported by truck to Lac du Bonnet, Man., and shipped by rail to Copper Cliff, Ont., for smelting. The Marbridge Mines Limited mine in La Motte township, Que., was operating at close to its daily capacity of 400 tons and a second shaft will increase production by 200 tons starting in mid-1965; bulk nickel-copper flotation concentrates, amounting to about 2,800 tons a month, are trucked to Falconbridge, Ont., for smelting. Lorraine Mining Company commenced production at 400 tons daily early in 1965 at its property in the Belleterre area of Quebec; indicated ore reserves to 800 feet are 550,000 tons of 2.1 p.c. combined nickel-copper. Giant Mascot Mines, Limited, near Hope, B.C., produced about 1,500 tons of ore daily, operating for 23 days each month; bulk nickel-copper concentrates are exported to Japan.

There were no price changes for nickel during the year. Prices remained at 84 cents a pound for Canada and 79 cents for the United States, both f.o.b. Port Colborne, Ont. The United States price includes import duty of $1\frac{1}{2}$ cents a pound.

Copper.—All segments of the copper industry moved ahead in 1964. Mine production at 494,017 tons was valued at \$328,233,604, an increase of 41,458 tons and \$43,829,894 over 1963. Production of refined copper increased as did domestic consumption. Mine production increased in Newfoundland, New Brunswick, Quebec, Ontario and Manitoba but decreased in Saskatchewan and British Columbia. Exploration for new copper properties and development of known deposits were proceeding in most of Canada's copper-bearing areas. New mines were brought into production in Newfoundland, New Brunswick, Quebec, Ontario, Manitoba and British Columbia and prospective producers were being developed in these provinces and in Saskatchewan. One mine, in British Columbia, was closed by a strike.

Six smelters for the reduction of copper and nickel-copper ores and concentrates are operated in Canada. In the Sudbury district of Ontario, The International Nickel Company of Canada, Limited operates smelters at Copper Cliff and Coniston, and Falconbridge Nickel Mines, Limited produces nickel-copper matte at its Falconbridge smelter. Hudson Bay Mining and Smelting Co., Limited at Flin Flon, Man., smelts concentrates from its mine in Manitoba and Saskatchewan and copper concentrates from the mine of Sherritt Gordon Mines, Limited at Lynn Lake, Man. Ores and concentrates from most of the copper mines in Ontario, Quebec and Newfoundland are smelted at the Noranda smelter of Noranda Mines, Limited and the Murdochville smelter of Gaspé Copper Mines, Limited, both in Quebec. Electrolytic copper refineries are operated by International Nickel at Copper Cliff, Ont., and by Canadian Copper Refiners Limited at Montreal East, Que. Production of refined copper in 1964 was 408,505 tons, 8 p.c. more than in 1963.

The output from Newfoundland's three established producers was augmented by that from Consolidated Rambler Mines Limited after the latter came into production in October. Total output in 1964 was 14,506 tons valued at \$9,689,729. British Newfoundland Exploration Limited was developing its Whalesback Pond mine for production in 1965 at 1,500 tons of ore a day and First Maritime Mining Corporation Limited was developing the Gull Pond property for production in 1966. The output of copper in New Brunswick continued its upward trend, rising 17 p.c. over 1963 to 10,523 tons valued at \$7,029,479. Brunswick Mining and Smelting Corporation Limited became the province's newest producer when mill tune-up started in March. The company will open two new mines and build a new lead-zinc concentrator in the Bathurst area in 1965.

The reactivation of idle capacity at the Horne mine of Noranda Mines, Limited and at the Murdochville mine of Gaspé Copper Mines, coupled with a full year's output from the mines in the Matagami area and production from new mines, brought Quebec's output to 160,288 tons of copper valued at \$107,072,207. Ten miles north of Noranda, Lake Dufault Mines Limited completed construction of a 1,300-ton-a-day concentrator and initial development of its orebody; mill tune-up started in August and the mine and plant were officially opened in October. About 60 miles north of Amos, Rio Algom Mines Limited was developing its Poirier Township mine for production, in 1966, at 1,500 tons of ore a day.

In Ontario, with the return to full production at the Sudbury mines of The International Nickel Company of Canada, Limited, copper production increased by 12 p.c. over 1963 to 201,031 tons valued at \$132,519,010. In addition to the nickel-copper mines of International Nickel and Falconbridge in the Sudbury area, Ontario's copper producers were: Rio Algom's Pater mine at Spragge; Kam-Kotia Porcupine and McIntyre-Porcupine at Timmins; Copperfield's Temagami mine at Timagami; and Wilroy and Noranda's Geco mine at Manitowadge and North Coldstream at Kashabowie. The discovery of a major zinc-copper-silver orebody, near Timmins, by Texas Gulf Sulphur Company sparked a vigorous exploration and staking rush in the area. Texas Gulf plans production from its orebody in late 1966 at 6,000 tons of ore a day.

Manitoba-Saskatchewan's two major producers, Hudson Bay Mining and Smelting Co., Limited and Sherritt Gordon Mines, Limited, had a combined output of 49,880 tons of copper valued at \$33,319,676, an increase of 6.7 p.c. over 1963. Hudson Bay operated a central mill and smelter at Flin Flon, treating ores from the Schist Lake, Chisel Lake and Stall Lake mines in Manitoba, the Coronation mine in Saskatchewan and the Flin Flon mine that straddles the Manitoba-Saskatchewan boundary. The Company continued exploration and development at its Osborne Lake and Anderson Lake mines near Snow Lake in Manitoba. Sherritt Gordon produced copper concentrates at its Lynn Lake, Man., mine for shipment to Hudson Bay's smelter, and nickel-copper concentrates for shipment to its own smelter at Fort Saskatchewan, Alta. Sherritt Gordon continued exploration of the Fox Lake copper deposit some 34 miles southwest of Lynn Lake.

Production in British Columbia decreased for the first time since 1962. At 57,506 tons the output was 8 p.c. lower than in 1963 and despite increased copper prices, the value of production in 1964 at \$38,413,747 was \$771,220 less than in 1963. The decrease in production can be attributed to the closure by flooding in December 1963 of the Sunro mine of Cowichan Copper Co. Ltd. at Jordan River, Vancouver Island, and the stoppage of operations at the Britannia mine of The Anaconda Company (Canada) Limited in August by a labour dispute. Mt. Washington Copper Co. Ltd. near Courtenay, Vancouver Island, became British Columbia's newest producer when operations started in December. Three new mines are slated for production by 1968. Western Mines Limited at the south end of Buttle Lake, Vancouver Island, will build a 750-ton-a-day mill at its Lynx mine. Production is scheduled for late 1965. Granby Mining has scheduled production from its Granisle property in Babine Lake for 1966 at 5,000 tons of ore a day. On the Unuk River north of Stewart, Granduc Mines Limited has started the driving of an 11-mile tunnel from its mine to Tide Lake preparatory to building a 7,000-ton-a-day mill and mine production at this rate in 1968. Exploration parties were active in all parts of the province. In the Stikine River area, Kennco (Canada) Limited was exploring a large low-grade copper deposit.

There was no production from the Territories in 1964 but New Imperial Mines Limited was exploring a number of copper occurrences in the copper belt just southwest of Whitehorse, Y.T.

Lead and Zinc.—Production of lead in 1964 totalled 200,385 tons, slightly less than in 1963. Major increases in New Brunswick and the Northwest Territories were offset by a decline in the output of mines in British Columbia. Refinery production at Trail, B.C., was 151,372 tons, or 3,600 tons less than in 1963. Exports of lead concentrates went to Belgium and the United States in about equal amounts with lesser amounts to Britain, West Germany, France, Japan and Mexico, totalling 80,357 tons of contained lead compared with 53,756 tons in 1963. Exports of refined lead totalling 95,867 tons went to 10 countries—Britain took 42,000 tons, the United States 30,000, Japan 9,800 and India 8,500 tons. Lead prices rose from 13 to 15.5 cents a pound during 1964.

Production of zinc in 1964 was very much higher than in the previous year due to the opening of two new mines late in 1963 and of four new mines during 1964. The total was a record 682,021 tons compared with 473,722 tons in 1963. Refinery production at the three Canadian plants at Trail, Flin Flon and Valleyfield was also higher, rising from 284,021 tons to 337,728 tons due mainly to the output of the Valleyfield plant which opened late in 1963. Exports of zinc concentrates, totalling 403,102 tons, went mainly to the United States (188,750 tons), Belgium (93,377 tons), West Germany (32,298 tons), Poland (28,356 tons) and Japan (24,384 tons). Refined zinc exports went to 33 countries and, in total, amounted to 238,076 tons. Britain took 97,991 tons, the United States 78,563 tons, the Netherlands 15,534 tons, and India 15,126 tons. Zinc prices rose from 13 to 14.5 cents a pound during 1964.

All of the Yukon Territory's production of lead and zinc was accounted for by United Keno Hill Mines Limited, which operates mines in the Mayo district some 200 miles north of Whitehorse.

British Columbia's production was mainly from the southeastern part of the province, most of it being accounted for by The Consolidated Mining and Smelting Company of Canada Limited which operates the Sullivan mine at Kimberley, the H. B. mine at Salmo and the Bluebell mine at Riondel; daily lead-zinc ore production from these three mines was, respectively, 10,000, 1,200 and 700 tons. Other large producers in this part of the province included Canadian Exploration, Limited at Salmo, Reeves MacDonald Mines Limited at Remac and Sheep Creek Mines Limited at Toby Creek. British Columbia's only producer of copper-zinc ore was The Anaconda Company (Canada) Ltd., which operates the Britannia mine some 20 miles north of Vancouver. There are a number of

smaller lead-zinc producers in British Columbia and Consolidated Mining and Smelting treats concentrates from most of these properties, as well as some Yukon Territory and foreign concentrates, at its Trail smelter.

Most of Saskatchewan's output of zinc came from the large base-metal mine at Flin Flon operated by Hudson Bay Mining and Smelting Co., Limited. This mine, which straddles the Saskatchewan-Manitoba boundary, was also the source of most of Manitoba's zinc and some of its lead. Hudson Bay also operated the Schist Lake and Coronation mines near Flin Flon, and the Chisel Lake and Stall Lake mines at Snow Lake, 90 miles east of Flin Flon. The Stall Lake mine was brought into production in February 1964. The ore from all company mines plus a relatively small amount of custom ore was treated at the Flin Flon metallurgical works for the recovery of zinc, copper and by-product metals.

In Ontario, Noranda Mines Limited (Geco Division) and Willroy Mines Limited, both at Manitouwadge, produced zinc, lead and copper concentrates; Kam-Kotia Porcupine Mines Limited at Timmins produced mainly copper concentrates and also a small tonnage of zinc concentrates. At Port Maitland on Lake Erie, zinc concentrates from Ontario and Quebec mines were roasted by Sherbrooke Metallurgical Company Limited and the resulting calcine was shipped to the United States for final treatment by Matthiessen & Hegeler Zinc Company, the owner of the Port Maitland plant.

Quebec's lead production was small in 1964 but its zinc output rose from 75,084 tons in 1963 to 228,580 tons in 1964. Production of zinc from the new Matagami Lake camp totalled 188,000 tons. A new producer in the Noranda district, Lake Dufault Mines Limited, came into operation in August 1964 and produced about 6,000 tons of contained zinc from copper-zinc ores. Other mines in Quebec were the Normetal (copper-zinc), Quemont (copper-zinc), Manitou-Barvue (copper-zinc-lead) and East Sullivan (copper-zinc), all in the Noranda-Val d'Or area; New Calumet (zinc-lead) at Calumet Island on the Ottawa River; Coniagas (lead-zinc-silver) at Bachelor Lake; and Solbec (copper-zinc-lead) in the Sherbrooke district.

New Brunswick's production rose substantially with the opening in March of the Brunswick No. 12 mine near Bathurst, which produced about 65,000 tons of zinc and 25,000 tons of lead during 1964. Brunswick Mining and Smelting Corporation Limited, which owns the mine, continued construction of a zinc-lead blast-furnace at Belledune Point, 25 miles north of Bathurst, where part of the output of the No. 12 mine will be smelted; the remainder will continue to be shipped to European smelters. Heath Steele Mines Limited near Newcastle, N.B., produced copper, lead and zinc concentrates. Nova Scotia's only lead-zinc producer is Magnet Cove Barium Corporation, at Walton. In Newfoundland regular lead-zinc-copper production continued at the Buchans mine of American Smelting and Refining Company. Consolidated Rambler Mines Limited opened a copper-zinc mine near Baie Verte in September, operating a 500-ton mill.

The highlight of exploration in 1964 was the discovery, announced in April, of a zinc-copper-silver deposit near Timmins, Ont. After preliminary drilling, Texas Gulf Sulphur Company indicated the reserve was 55,000,000 tons averaging 7.08 p.c. zinc, 1.33 p.c. copper and 4.85 oz. silver per ton, which it later confirmed. There was increased exploration at Pine Point in the Northwest Territories where the Great Slave Lake railway from Roma in Alberta to Hay River and Pine Point was opened for limited operation late in 1964. Test shipments of lead-zinc ore from the mine at Pine Point were made. Western Mines Limited continued development of a zinc-lead-copper deposit on Vancouver Island. Hudson Bay Mining and Smelting Co., Limited carried out exploration and development in the Snow Lake district of Manitoba, and Sherritt Gordon Nickel Mines Limited continued exploration of a copper-zinc deposit at Fox Lake in northern Manitoba. In Quebec, mine development proceeded in the Poirier-Joutel district north of Amos. Preparations were begun in New Brunswick for bringing the Brunswick No. 6 mine, the New Larder "U" mine, and the Nigadoo mine into production.

Gold.—Canadian gold production in 1964 decreased to an estimated 3,810,738 oz.t. valued at \$143,855,362 compared with 4,003,127 oz.t. worth \$151,118,045 in 1963. The average price for gold paid by the Royal Canadian Mint in 1964 was \$37.75 per oz.t. in Canadian funds, the same as in the previous year. On May 2, 1962, the Canadian dollar was stabilized at 92.5 cents in terms of the U.S. dollar but it can fluctuate 1 p.c. either side of the fixed value. The range in value for the Canadian dollar is thus set at \$0.916 to \$0.934 in relation to the U.S. dollar and the corresponding Royal Canadian Mint price between \$37.46 and \$38.22 per oz.t.

The Emergency Gold Mining Assistance Act (see p. 577) was extended to the end of 1967 but, despite the benefit of cost assistance, the gold mining industry is encountering increasing difficulty in continuing operations. One lode gold mine closed in 1964 as ore reserves were exhausted and a number of others were scheduled to close in 1965. Two new, but small, lode gold mines began operations in 1964 and two others operated on a minor, intermittent basis. In 1964, the proportion of gold coming from lode gold mines decreased to 81.9 p.c. from 82.5 p.c. and by-product gold from base-metal ores increased to 16.6 p.c. from 16.0 p.c. Placer gold accounted for 1.5 p.c., the same as 1963.

Ontario remained the principal producer, accounting for over 56 p.c. of the total. Quebec was second with approximately 24 p.c., followed by the Northwest Territories with 10 p.c. and British Columbia with about 3.4 p.c.

In Ontario, all the gold producing areas recorded decreases in 1964 and production declined to an estimated 2,135,269 oz.t. from 2,338,854 oz.t. in 1963. Thirty lode gold mines operated in the province in 1964, two of which were small, intermittent producers. Thirteen mines operated in the Porcupine area but one of them, Kenilworth Mines Limited, was on a very small scale. Delnorte Mines Limited closed in August. Six mines were in operation in the Red Lake-Patricia district. McKenzie Red Lake Gold Mines Limited, Cochenour Willans Gold Mines, Limited and Pickle Crow Gold Mines, Limited suffered substantial production declines. At Larder Lake, Kerr Addison Mines Limited decreased production about 15 p.c. Five mines operated at Kirkland Lake but total production was about 5.7 p.c. lower. Production at the three mines in the Port Arthur mining division declined by over 15 p.c. An estimated 62,000 oz.t. of gold was recovered as a by-product from base-metal ores in Ontario compared with 59,962 oz.t. in 1963.

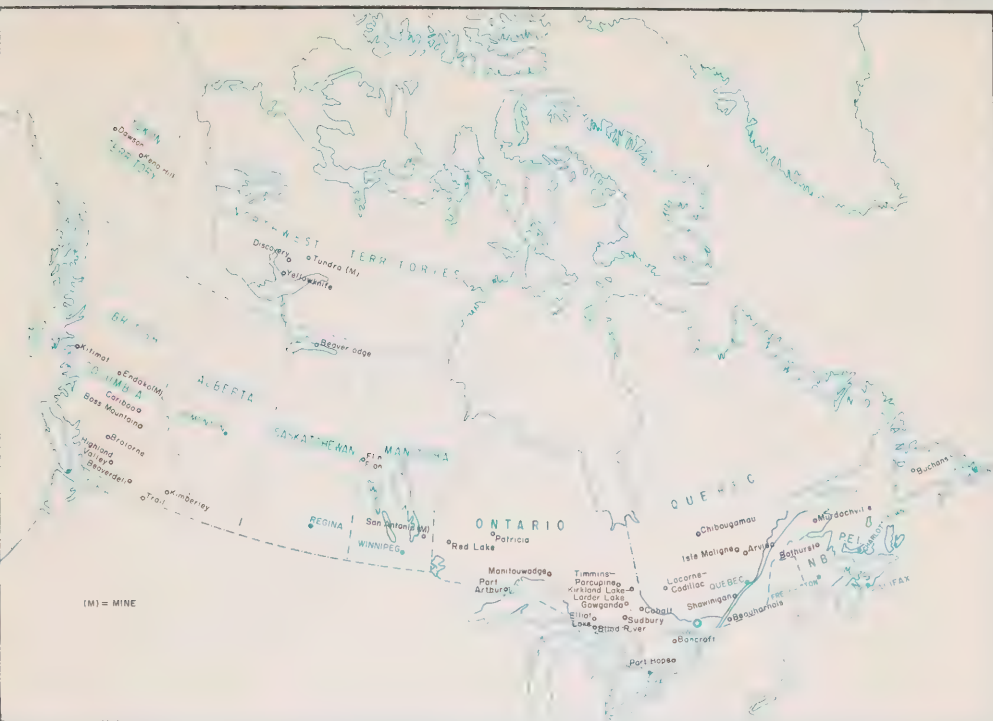
Twelve lode gold mines operated in Quebec in 1964 and gold production increased about 3 p.c. to an estimated 944,941 oz.t. from 917,229 oz.t. in 1963. One new lode gold mine, Norbeau Mines (Quebec) Limited, began operations in the Chibougamau copper-gold district in September and a number of prospective gold producers were under development. Gold recovered as a by-product from base-metal ores represented about 45 p.c. of the provincial total.

In the Northwest Territories, a new lode gold mine, Tundra Gold Mines Limited, began operations in March and helped to increase total gold output by almost 4 p.c. Giant Yellowknife Mines Limited and Discovery Mines Limited, which located new high-grade ore deposits, both increased production substantially.

Two lode gold mines were in continuous production in British Columbia. Production declined sharply at Bralorne Pioneer Mines Limited but increased slightly at The Cariboo Gold Quartz Mining Company, Limited; production from the two mines was down over 12 p.c.

Manitoba and Saskatchewan together accounted for an estimated 103,611 oz.t. in 1964 compared with 117,897 oz.t. in 1963. San Antonio Gold Mines Limited, the only lode gold producer in the two provinces, improved production considerably in 1964. Most of the remaining production is derived from the base-metal ores mined in the Flin Flon area. In the Yukon Territory, all gold came from placer operations. The dredge and hydraulic operations of The Yukon Consolidated Gold Corporation, Limited at Dawson recovered about 95 p.c. of Canada's total placer gold production. Some gold was recovered in New Brunswick and Newfoundland as a by-product of base-metal production.

GOLD, SILVER, URANIUM, MOLYBDENUM AND ALUMINUM REFERENCES



ASBESTOS, POTASH AND SULPHUR REFERENCES



Uranium.—Despite the general decline of the uranium mining industry over the past five years, deliveries in 1964, at 6,914 tons of uranium oxide (U_3O_8), were about 18 p.c. lower than in the previous year (8,352 tons) and were substantially lower than the peak production year of 1959 (15,892 tons). Canada has been one of the world's leading producers of uranium since the metal became important as a fissionable material for military purposes and, more recently, in the development and production of atomic energy for electric power generation. One of the largest known deposits in the world is in Canada where present reserves represent about 35 p.c. of the total in the non-communist world.

The rapid growth of the uranium mining industry since World War II was remarkable. In 1958, Canada was the world's leading producer of uranium and the value of U_3O_8 produced in both 1958 and 1959 exceeded the value of any other Canadian-produced metal. As an export commodity, uranium ranked fourth in value in 1959 following newsprint, wheat and lumber. Production from 25 mines in that year was 15,892 tons of U_3O_8 valued at \$331,000,000. Since 1959 the decline in production, resulting from declining export markets, has been almost as rapid as the spectacular rise from 1953 to 1959. However, with the rapid development of economic nuclear power for the generation of electricity, the long-term future for the uranium industry holds considerable promise.

Practically all of Canada's uranium is sold under contract to the United States Atomic Energy Commission (USAEC) and the United Kingdom Atomic Energy Authority (UKAEA). The United States, Canada's largest customer, announced in 1959 that it would not exercise its option to purchase additional uranium from Canada. To prevent a collapse of the industry in 1962 and 1963, when the USAEC contracts would expire, the Government of Canada, through Eldorado Mining and Refining Limited, negotiated a delivery stretch-out for the uranium already under contract with the USAEC and the UKAEA. This plan also permitted the transfer of contracts between companies. In 1962, a contract was signed with the UKAEA for the delivery of 12,000 tons of U_3O_8 over a period extending until late 1971. This contract permitted each of the seven mining companies, which were still operating in 1962, to extend its operating life approximately 16.7 months past the completion date of previous commitments.

Procurement and marketing of most of the uranium produced in Canada has been the responsibility of Eldorado Mining and Refining Limited. Private producers are free to sell uranium abroad without reference to Eldorado but sales are subject to control measures administered through the Atomic Energy Control Board. Sales of uranium to countries that do not hold agreements with Canada for co-operation in the peaceful uses of atomic energy are permitted; however, the maximum amount any such country may receive from Canada is 2,500 lb.

Ore reserves as of Jan. 1, 1964, were estimated at 225,000,000 tons containing 207,000 tons of recoverable uranium oxide (U_3O_8) and about 82,000 tons of thorium oxide (ThO_2). Reserves in the conglomeratic deposits in the Blind River-Elliot Lake district of Ontario constitute 93 p.c. of Canada's total. Reserves in pitchblende-bearing vein-type deposits in the Beaverlodge Lake area of northern Saskatchewan comprise 6 p.c. and the pegmatitic deposits in the Bancroft area of southeastern Ontario make up about 1 p.c. Scheduled deliveries of U_3O_8 to the USAEC and the UKAEA from 1964 to 1971, inclusive, total 16,851 tons. By the end of 1971 Canada's reserves will be approximately 190,000 tons of recoverable U_3O_8 if no further exploration is undertaken before then. Domestic requirements of uranium for nuclear power purposes will not appreciably affect Canada's ability to export uranium in the future.

Silver.—With recovery of silver in substantial quantities commencing at several new base-metal mines in 1964 and several other producers completing their first full year of operation, Canada's silver production at 31,111,943 oz.t. was somewhat higher than 1963 output of 29,932,003 oz.t. The increase was largely the result of higher output in Ontario and initiation of by-product output from the zinc-lead-copper-silver mine of Brunswick

Mining and Smelting Corporation Limited in New Brunswick. The value of 1964 production was \$13,556,719 compared with the value of 1963 production at \$41,425,891. At the beginning of the year the price was \$1.4020 per oz.t. and at year-end it was \$1.3930; average for 1964 was \$1.4000. Of the total 1964 output, 79 p.c. was by-product derived from base-metal ores, 19 p.c. came from silver-cobalt ores mined in northern Ontario and 2 p.c. from lode gold ores mined in British Columbia, Ontario and Quebec and placer-gold ores mined almost entirely in British Columbia and the Yukon Territory.

The Consolidated Mining and Smelting Company of Canada Limited, at its refinery at Trail, B.C., produced 7,347,590 oz.t., most of which was derived from lead and zinc concentrates originating in mines in southeastern British Columbia and in the Yukon Territory. The remainder of the Canadian output of refined silver was produced from blister and anode copper by Canadian Copper Refiners Limited in Montreal East; from blister copper by The International Nickel Company of Canada, Limited at Copper Cliff, Ont.; from gold precipitates by Hollinger Consolidated Gold Mines, Limited at Timmins, Ont.; from gold bullion by the Royal Canadian Mint at Ottawa; and from arsenical-silver-cobalt concentrates by Cobalt Refinery Limited at Cobalt, Ont.

Canada's largest sources of silver are the Hector-Calumet, Keno, Elsa and Silver King silver-lead-zinc mines in the Yukon Territory about 200 miles north of Whitehorse, operated by United Keno Hill Mines Limited, and the Sullivan lead-zinc-silver mine at Kimberley, B.C., operated by The Consolidated Mining and Smelting Company of Canada Limited. In the 15-month period ended Dec. 31, 1964, United Keno produced concentrates containing 7,270,911 oz.t. and in 1964 Consolidated Mining and Smelting produced concentrates at the Sullivan mine containing 2,897,791 oz.t. Other important producers of by-product silver included Mastodon-Highland Bell Mines Limited at Beaverdell in southern British Columbia; Hudson Bay Mining and Smelting Co., Limited at Flin Flon, Man.; Noranda Mines Limited (Geco Division) at Manitouwadge, Ont.; The International Nickel Company of Canada, Limited at Sudbury, Ont.; Brunswick Mining and Smelting Corporation Limited near Bathurst, N.B.; and American Smelting and Refining Company (Buchans Unit) in Newfoundland. In the Cobalt and Gowganda areas of Ontario a number of firms mined silver-cobalt ores from which 5,920,900 oz.t. of silver were recovered in 1964.

Platinum Metals.—Canadian production of the platinum metals in 1964 amounted to 374,988 oz.t., valued at \$25,196,159. This slight increase over the previous year resulted from increased 1964 nickel production; platinum metals are recovered as a by-product of nickel mining. The group consists of platinum, palladium, rhodium, ruthenium, iridium and osmium; all except osmium are produced in Canada. World markets for platinum metals were very strong in 1964. In the past several years, world production has been about evenly divided between Canada, the Republic of South Africa and the U.S.S.R. In 1961, sales by the U.S.S.R. to the non-communist world virtually ceased, causing a wide difference between the official platinum price, about \$90 an oz.t., and the free market price, up to \$140 an oz.t.

Platinum metals occur in Canadian nickel ores to the extent of about 0.025 oz.t. per ton of ore. In the treatment of these ores for nickel, the platinum metals follow nickel and are eventually removed as sludges from the electrolytic tanks in which nickel anodes have been formed. The sludge is purified and sent to precious metal refineries in Britain and the United States for recovery of the platinum metals. All of Canada's platinum metals production results from the treatment of nickel ores of the Sudbury district of Ontario and the Thompson mine in Manitoba.

Cobalt.—Cobalt is derived as a by-product from the smelting and refining of nickel-copper ores of Sudbury, Ont., and Lynn Lake, Man.; from nickel ores of Thompson, Man.; and from silver ores of Cobalt, Ont. International Nickel recovers cobalt from its refinery operations at Port Colborne, Ont., Thompson, Man., and Clydach, Wales, based on its Sudbury and Thompson ores. Falconbridge Nickel produces electrolytic cobalt in the

refining of nickel-copper matte exported to its refinery at Kristiansand, Norway. Sherritt Gordon recovers cobalt as a by-product at its nickel refinery at Fort Saskatchewan, Alta., from its Lynn Lake nickel-copper ores. Cobalt Refinery Limited at Cobalt, Ont., recovers black cobalt oxide and mixed cobalt and nickel oxide from silver concentrates. Eldorado Mining and Refining Limited has developed a process for the recovery and purification of cobalt, nickel and arsenic from silver-cobalt concentrates. Total Canadian production in 1964 was 3,196,322 lb. valued at \$6,484,255.

Columbium.—St. Lawrence Columbium and Metals Corporation continued to be the only Canadian producer of columbium concentrates. Mine production in 1964 amounted to 2,250,000 lb. of contained Cb_2O_3 in pyrochlore concentrates valued at \$2,305,000. The company's mine is near the town of Oka, 20 miles west of Montreal. Quebec Columbium Limited and Columbium Mining Products Limited also own large pyrochlore deposits in the Oka area. Masterloy Products Limited, Ottawa, Ont., is the only Canadian manufacturer of ferro-columbium, which is sold in Canada and the United States.

Molybdenum.—Molybdenum production in 1964 amounted to 1,278,404 lb. of contained Mo in molybdic oxide (MoO_3) and molybdenite (MoS_2) concentrates valued at \$1,789,234. Production came from the Molybdenite Corporation of Canada Limited's mine at Lacorne, Que., and the Gaspé Copper Mines Limited's mine at Murdochville, also in Quebec, and from the Bethlehem Copper Corporation's mine in the Highland Valley of British Columbia. Molybdenum is recovered as a primary product at the Lacorne mine and as a by-product of copper operations at the other two mines.

During 1964, preproduction work was carried out at the properties of Preissac Molybdenite Mines Limited and that of Anglo-American Molybdenite Mining Corporation; both properties are in Preissac Township, about five miles north of Cadillac, Que. Also in 1964, Noranda Mines Limited prepared its Boss Mountain property in British Columbia for production, and Endako Mines Limited prepared its property at Endako, B.C.; both mining operations were scheduled to commence by mid-1965. The Boss Mountain mine will produce about 3,000,000 lb. of contained Mo in concentrates a year and the Endako mine will produce about 10,000,000 lb. a year.

Selenium and Tellurium.—Selenium production in 1964 totalled 448,750 lb. valued at \$2,213,182, 4 p.c. lower than in 1963; tellurium output at 79,789 lb. valued at \$508,830 was about 4 p.c. higher than in 1963. These metals are recovered from the anode muds resulting from the electrolytic refining of copper at the plants of Canadian Copper Refiners Limited at Montreal East, Que., and International Nickel at Copper Cliff, Ont.

Magnesium.—The only Canadian producer, Dominion Magnesium Limited, is also the only Canadian source of calcium and thorium. Dolomite of exceptional purity is quarried and reduced to magnesium by the ferrosilicon method at Haley, Ont. In 1964, magnesium production was 9,021 tons. Expansion of the smelter from 10,000 to 11,000 tons annual capacity will be completed in 1965. Canadian consumption of primary magnesium is about 3,600 tons, including imports; a further 400 tons of semi-fabricated forms are imported.

Titanium.—Ilmenite, an iron-titanium oxide, is mined in the Allard Lake and St. Urbain areas of Quebec. The Allard Lake ore, mined by Quebec Iron and Titanium Corporation, is smelted by the company in electric furnaces at Sorel, Que., to produce high-titania slag and pig iron. The slag is sold to producers of titanium-based pigments in Canada, the United States, Britain, Japan and other countries. Ilmenite mined at St. Urbain by Continental Titanium Corporation is used as heavy aggregate in weighting oil and gas transmission pipelines and in shielding nuclear reactors. The value of titanium-bearing materials shipped in 1964 as ore, heavy aggregate and titanium-bearing slag was at an all-time high of \$20,981,935, which compares with \$13,806,608 in 1963.

Aluminum.—Canada is second, after the United States, in non-communist world aluminum production. At the end of 1964 annual capacity was 913,000 tons but capacity for a further 20,000 tons was under construction at the Kitimat, B.C., smelter of Aluminum Company of Canada Limited. This Company also has smelters at Arvida, Isle Maligne, Shawinigan and Beauharnois, all in Quebec. Canadian British Aluminium Company Limited operates a smelter at Baie Comeau, Que., with an estimated capacity of 105,000 tons. As all bauxite or alumina used by the aluminum smelters must be imported, mainly from the Caribbean area, metal production is classed in official statistical data with manufactures and not with smelter production of ores and metals of domestic origin. Production of primary aluminum in 1964 was 842,640 tons, of which 627,992 tons were exported. Domestic consumption was estimated at about 175,000 tons as measured at the semi-fabricated level. Of this amount 18,054 tons were exported.

Subsection 2.—Industrial Minerals

The 1964 production of industrial minerals in Canada was at a record high for the sixth consecutive year. Producer shipments of non-metallic minerals, clay products and other structural materials of mineral origin were valued at \$687,300,000, almost 9 p.c. higher than for the previous year, and represented 20 p.c. of the total mineral production. New production records were established for asbestos, cement, gypsum, nepheline syenite, potash, salt, sodium sulphate and sulphur. Important developments taking place during 1964 in the production and marketing of asbestos, potash, silica sand, sulphur and certain structural materials are reviewed in this Subsection.

Asbestos.—In 1964, for the fifth consecutive year, Canadian shipments of asbestos established an all-time high: 1,377,079 tons of fibre valued at \$148,370,312 were shipped to the markets of the world, an increase of 8 p.c. over 1963. Quebec, which produces almost 90 p.c. of the Canadian output, British Columbia and Newfoundland contributed to the increase. Shipments in Ontario, the only other producing province, were lower than in 1963. The principal grades were in good demand during the year.

World production for 1964 is estimated at 3,500,000 tons, having doubled in a ten-year period. A substantial part of this increase is attributed to a rapid rise in the U.S.S.R. where production is estimated to be 1,500,000 tons, slightly ahead of the Canadian output. Traditionally, the U.S.S.R. asbestos industry has been located at Sverdlovsk in the Urals but two other important areas have been under development for some time and a new mine near Kiembi, Kazakhstan, about 300 miles south of Sverdlovsk, is expected to begin operation in 1965. A deposit at Aktrovak in Tannu-Tuva is also being prepared for early production. These developments will provide a major increase in the U.S.S.R.'s production capability for asbestos fibre. While Soviet Union consumption is expected to rise with the addition of new asbestos-cement producing facilities currently under construction, there is speculation that exports will also increase.

In Quebec, Asbestos Corporation Ltd., the second largest producer of Canadian asbestos, acquired the assets of Johnson's Co. Ltd. and Johnson's Asbestos Company operating the Johnson mine at Thetford and the Magnetic pit at Black Lake. Johnson's have had a continuous record of production for over eighty years. The consolidation, will enable certain production economies to be achieved in the two producing areas. Asbestos Corporation, early in the year, exercised its option to acquire the Asbestos Hill deposit of Murray mining Corporation Limited, 40 miles south of Deception Bay in northern Quebec. Over the past few years exploration and development of this deposit have established a substantial reserve of commercial-grade fibre.

The only producing asbestos mine in Ontario (Munro, of Canadian Johns-Manville Company, Limited, located near Matheson) ceased operation on July 31. This mine has been a source of fibre for the asbestos-cement industry since 1950. The same company

has in hand an extensive exploration and development program in Reeves Township, about 40 miles southwest of Timmins. Underground development work is proceeding to prove up the orebody and facilitate bulk sampling of the deposit.

In British Columbia, Cassiar Asbestos Corporation Limited increased mill capacity to 1,700 tons a day, providing additional equipment for recovery of other asbestos-cement fibre grades. The company continued its exploration program at Clinton Creek, adding to the reserves of this promising deposit.

Potash.—During 1964 world potash demand increased at a higher rate than in past years until it exceeded output. Despite high production by all suppliers, inventories were reduced and shortages were reported in overseas markets. In North America supplies were barely sufficient to serve domestic and some export demands. Except for full-scale production and increased capacity at the Esterhazy plant of International Minerals and Chemical Corporation (Canada) Limited, shortages would have occurred in North America and would have been more serious in overseas markets. This plant is estimated to have exported more than 700,000 tons K_2O in 1964 with a value of about \$20,000,000.

The success of the Esterhazy project and the rising demand for potash throughout the world served to encourage new development in Saskatchewan. In mid-1964, Kalium Chemicals Limited started operating its new solution mining complex 25 miles west of Regina and in late September, at the formal opening of the plant, shipped two trainloads of potash totalling some 7,000 tons. Potash Company of America was completing plant alterations and plans to resume production early in 1965. In addition, new deep potash shafts were being sunk by International Minerals at Gerald, by Alwinsal Potash Corporation of Canada Limited near Lanigan and by United States Borax and Chemical Company at Allan and it is expected that other potash projects will be announced during 1965. The 24 companies holding potash rights in Saskatchewan and Manitoba at the end of 1964 had about 4,000,000 acres under permit and lease. To the companies now considering but not yet committed to potash development in Saskatchewan, the vital consideration is to accurately assess the future growth in world potash demand; this is expected to be in the order of 13,000,000 tons K_2O in 1965, 16,000,000 tons in 1970 and 20,000,000 tons or more in 1975. Recent data tend to suggest that even these estimates are conservative in that consumption of potash has increased from 10,600,000 tons in 1962 to 11,600,000 tons in 1963 and to an estimated 13,000,000 in 1964. Assuming that these projections are realistic and considering that productive capacity should be possibly 20 p.c. in excess of expected demand, projected capacities should then be about 15,600,000 tons in 1965, 19,200,000 tons in 1970 and 24,000,000 tons in 1975. Of these totals, Canadian capacity is expected to be about 1,600,000 tons in 1965, 5,500,000 tons in 1970 and 8,700,000 tons in 1975.

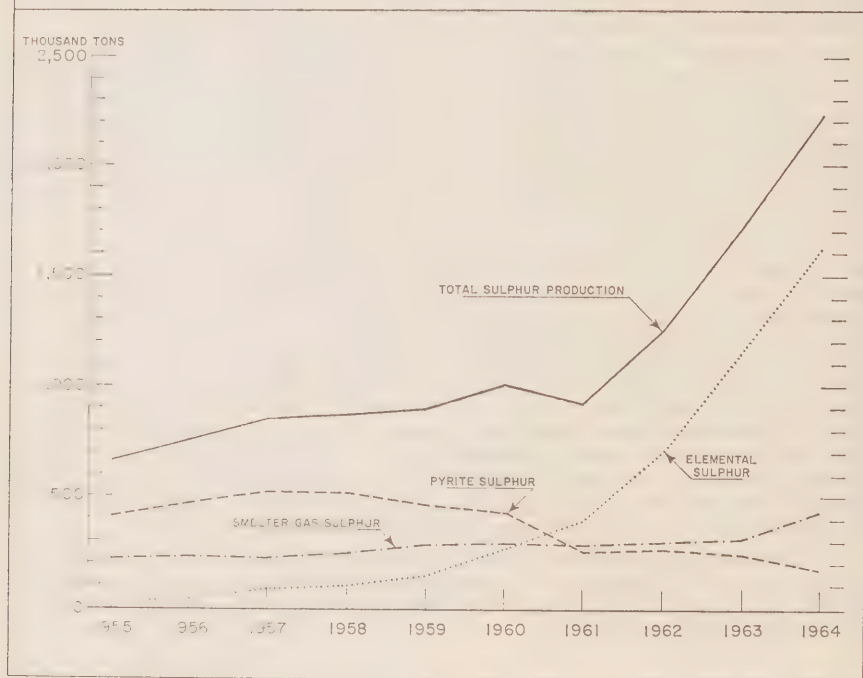
Considering these world potash requirements and the vast reserves of high-quality material available in Canada, the major industry being developed is both necessary and timely. It is possible that the most optimistic suggestions about future production in Saskatchewan will prove to be low.

Silica Sand.—Canada has always been heavily dependent on imported silica sand, chiefly from northeastern United States, for the bulk of its requirements. The chief consumers, glass and silicon carbide manufacturers and steel foundries, are located principally in southeastern Quebec and southern Ontario where there are no naturally occurring high-quality sand deposits. However, two domestic producers are assuming an increasingly important role in providing high-quality sand for the Quebec market—Industrial Minerals of Canada, Limited, operating a deposit of Potsdam sandstone at St. Canut, Two Mountains County, Que., and Dominion Industrial Mineral Corporation, operating a deposit of friable quartzite at St. Donat, Montcalm County, Que. Industrial Minerals, in 1964, completed an extensive investigation of silica deposits in the area south and west of Montreal and late in the year acquired a controlling interest in Canadian Silica Corporation Limited, the largest producer of silica sand in Canada. Dominion Industrial Mineral

Corporation, in a move to consolidate operations, sold its silica milling plant at Lachine, Que., and embarked on a \$1,000,000 expansion program at St. Donat, which will include a wet silica processing plant that, when completed in 1965, will have a rated output of 360,000 tons of products annually.

Sulphur.—The major part of Canadian elemental sulphur production is derived from "sour" natural gas in Western Canada. During 1964 elemental sulphur was produced at 15 plants in Alberta, at one plant in British Columbia and at one in Saskatchewan. Minor amounts are obtained during the refining of oil and base metals at plants in Ontario and Manitoba. The marked increase in elemental sulphur production and the decrease in pyrite sulphur, especially since 1960, is clearly shown by the accompanying chart.

CANADIAN SULPHUR PRODUCTION, 1955-64



Total production capacity is about 2,100,000 tons a year and preliminary estimates indicate that production in 1964 was about 1,600,000 tons. The completion of three new plants and expansion at another plant will increase capacity to more than 2,500,000 tons in 1965.

During 1963 and 1964, world sulphur consumption increased at a higher than normal rate mainly due to increased demand for fertilizer but also to expanding needs in a multitude of other industries. This increased demand has created a situation in which sulphur stockpiles are becoming depleted and prices are rising. Canada occupies a strong position in the world sulphur industry. A large proportion of domestic needs are served by smelter gas and consequently most of the elemental sulphur production is exported. Because Canadian elemental sulphur is largely a co-product of natural gas production, the unit cost is believed

to be considerably lower than that of sulphur from other sources, allowing Canadian sulphur to compete in world markets despite relatively high transportation charges. In 1963 more than 820,000 tons of sulphur were exported to 14 foreign countries and during the first nine months of 1964 more than 1,000,000 tons were exported to 21 countries.

Construction Materials.—The total value of construction in Canada reached an all-time high in 1964, notable increases being shown in industrial construction in the western provinces and Quebec. Keeping pace, the output of mineral products used in construction attained a record level.

Since the industrial development of Canada has resulted in an increasing demand for low-cost electric energy, large hydro-electric power developments are under construction in Quebec, British Columbia, Saskatchewan and Manitoba, all of them consuming vast quantities of cement, sand and gravel, and crushed stone.

In the concrete aggregate field, manufactured sand and stone are becoming increasingly important as suitable natural sand and gravel deposits become depleted. Because specifications for aggregate are becoming more rigid, greater attention to beneficiation and processing methods is necessary to meet customer requirements and to offset higher labour and equipment costs.

Exposed aggregate applications in slab, panel and block shapes are gaining in popularity. The demand for new colours and methods of expression has created a need for additional sources of rocks suitable for the production of vari-coloured, exposed aggregate panels and tiles. These panels are used for walls, patios and as pavement blocks in both interior and exterior applications. Quartz, limestone, marble and granite are commonly used as aggregate. Other colourful rocks such as sodalite, amazonite, rose quartz, black to grey anorthosite, and various colours and varieties of marble and granite are used for terrazzo and granox-type tile and panel manufacture. In addition to the usual cement-bonded terrazzo and granox products, these items are now being produced with plastic binders. Specially constructed panels, containing wear-resistant chips and aggregates of slag, emery or other grit bonded in plastic, are being used in stain-, heat- and abrasion-resistant applications.

New textured and coloured granites and marbles are now appearing on the market. Some of the more recent additions in this field are green granite from the Rivière à Pierre area of Quebec; fine-grained black granite from north of the Peribonca River in Quebec; and fine-grained, tough, black granite from River Valley in Ontario.

Cement.—Another year of record production was registered by Canada's cement industry in 1964. Production was 10 p.c. greater than in 1963. This increase was the result of additional requirements for general construction and for large dam projects, particularly the Manicouagan in Quebec and the Peace River in British Columbia.

Major expansion in productive capacity took place during the year: two additional kilns were added to existing plants—one by Canada Cement Company, Limited at Fort Whyte, Man., and the other by St. Mary's Cement Co. Limited at St. Mary's, Ont.; expansions representing a total increase of 4,500,000 bbl. of annual output were under way at three plants—the Villeneuve, Que., plant of St. Lawrence Cement Company, the Picton, Ont., plant of Lake Ontario Portland Cement Company Limited, and the Corner Brook, Nfld., plant of North Star Cement Limited. Construction of Nova Scotia's first cement plant was started by Canada Cement Company at Brookfield, and Inland Cement Company Limited started construction of a new plant at Tuxedo, Man.; the latter also purchased a partially completed plant at Rosser, Man., from British-American Construction Company. Expansions of the Havelock, N.B., plant of Canada Cement Company and of the Montreal plant of Miron Company, Ltd. are planned for 1965 and new plants are scheduled for Joliette, Que., by Independent Cement Incorporated and for Prince George, B.C., by Peace River Cement Company Limited.

Ceramic Materials.—Several interesting and important expansions in the domestic ceramic industry were noted during the year. New clay preparation equipment and several tunnel kilns were added or are being considered to meet an increasing demand for brick and other ceramic products. Clayburn-Harbison Ltd., Vancouver, completed a new tunnel kiln for firing pressed face brick at its Abbotsford plant. The company has introduced a new "giant" pressed clay brick which is similar in size and structure to the common concrete block. This brick is being successfully marketed in the Vancouver and Seattle areas. A new tunnel kiln for use in the manufacture of facing brick from local raw materials was completed at Brique Citadelle Ltée's Beauport plant in Quebec, production from which will supplement that from two tunnel kilns and a continuous kiln at the company's Boischatel plant. The tunnel kilns at Boischatel are used for firing buff facing brick manufactured from imported clay. New clay preparation equipment has been added by East Angus Brick and Tile, Inc., at East Angus, Que., and by Estevan Clay Products at Estevan, Sask.

Medicine Hat Brick and Tile Company Limited plans to build a tunnel kiln plant to produce pressed facing brick at Redcliff, Alta., and a second plant at Winnipeg to manufacture brick and tile. Sunburst Ceramics Ltd. has introduced several novel processing methods at its Medicine Hat plant, including a "Ram" process for the production of ceramic ware and the firing of ceramics by an envelope kiln.

Output from a new glass container plant nearing completion at Burnaby, B.C., being built for Dominion Glass Company, Ltd., together with that from Dominion Glass Company's plant at Redcliff, Alta., the only other glass container plant in the four western provinces, should adequately supply the western market for many of the common varieties of glass containers.

Subsection 3.—Petroleum and Natural Gas

Most segments of the Canadian oil and gas industry, from field production through transportation to marketing, had a good year in 1964. Production of crude oil averaged 750,000 bbl. a day compared with 710,000 in 1963. In addition, the propane, butane and pentanes-plus derived from natural gas contributed 105,000 bbl. daily to the liquid hydrocarbon supply. Thus total liquid hydrocarbon output of oil and gas field facilities amounted to 855,000 bbl. a day, an increase of 9 p.c. over 1963. Production of natural gas continued to increase at about the same rate as in 1963. Net production amounted to 3,600,000 Mcf. daily, 19 p.c. greater than 1963 output.

Production of crude oil and natural gas liquids increased in all the major producing provinces except British Columbia, where output decreased 6 p.c. Production in Alberta increased 8 p.c.; in Saskatchewan 14 p.c.; in Manitoba 17 p.c.; and in Ontario 3 p.c. Alberta held its position as the predominant producer, supplying 577,000 bbl. daily, or 67.4 p.c. of Canadian liquid hydrocarbon output. Saskatchewan production accounted for 26.4 p.c. and British Columbia for 4 p.c. Manitoba, Ontario, Northwest Territories and New Brunswick produced the small remainder. In Alberta, crude oil output was equivalent to less than half of the province's productive capacity but in the other provinces production was at near-capacity rates. Alberta was also the major producer of natural gas, accounting for 87 p.c. of Canada's net production.

The Alberta government announced a new crude oil proration plan, which is to become fully effective in 1969. The general effect of the plan will be to increase production from pools of large reserves and high productivity, while tending to discourage the development of marginally economic oil areas. The Saskatchewan government passed new legislation designed to encourage exploration in the province, particularly in the deeper strata, by allowing less restrictive land selection to companies making oil or gas discoveries and by providing a royalty-free period for discoveries below the top of Devonian strata.

Exploration and development drilling for oil and gas totalled 16,100,000 feet in 1964. The 15,600,000 feet drilled in Western Canada was 10 p.c. more than the 1963 total, and just short of the all-time record established in 1956. Development drilling, constituting

PETROLEUM AND NATURAL GAS REFERENCES



MAIN PRODUCING AREAS

- | | | |
|-------------------|--------------------------------|------------------|
| 1. Redwater | 2. Leduc-Woodbend, Bonnie Glen | 3. Pembina |
| 4. Swan Hills | 5. Kaybob | 6. Harmatton |
| 7. Joarcam | 8. Turner Valley | 9. Sturgeon Lake |
| 10. Boundary Lake | 11. Lloydminster | 12. Fosterton |
| 13. Coleville | 14. Weyburn | 15. Virden |

62 p.c. of drilling in Western Canada, increased moderately but exploratory drilling increased sharply. Discovery of a large oil field just southeast of Lesser Slave Lake early in 1964 was a major factor in the expanded exploratory activity as was the defining of large new gas reserves in north-central and west-central Alberta.

The gradual year-by-year decline in geophysical activity that has been evident during the past decade continued in 1964, although the decline was slight. While less field work is now being done than in earlier years, more time and money is being devoted to interpretation of field data. Geophysics is considered of limited value only in the search for certain types of oil reservoirs such as the stratigraphic traps of the Gilwood sand of the Lesser Slave Lake region. However, one area of recent activity where geophysics was indispensable was the Cutbank River region south of Grande Prairie, Alta., where deep Devonian gas-bearing reefs were delineated by seismic methods. In terms of crew-months, seismic survey work in Western Canada was as follows: Alberta, 394; Saskatchewan, 57; British Columbia, 85; Manitoba, 2; and Yukon and Northwest Territories, 57. Gravity surveys are used to only a small degree in Western Canada but the use of this type of survey has increased in the past two years. The gravity method still remains the chief geophysical tool in the southwestern Ontario petroleum region.

The increase in Canada's crude oil reserves was the largest in many years. Reserves of crude oil and natural gas liquids at the end of 1964 were 7,065,000,000 bbl., or 26 p.c. more than in the preceding year. A major portion of this addition was due to extensions and revisions of known oil occurrences, particularly because of widespread implementation of waterflood recovery programs. Net additions to reserves of natural gas in 1964 were the largest ever. A 17.4-p.c. increase raised total Canadian gas reserves to 43,400,000,000 Mcf. at the end of 1964.

Alberta.—Drilling in Alberta totalled 10,300,000 feet in 1964, 5.4 p.c. more than in 1963. Exploratory drilling, comprising 38 p.c. of the total footage, increased significantly but development drilling declined slightly. The main areas of oil-field development were in the House Mountain, Deer Mountain and Goose River fields in north-central Alberta, and in the Bantry-Taber heavy-oil region in southeastern Alberta. Expansion continued at established gas fields, such as Medicine Hat, in southeastern Alberta. Waterflood pressure maintenance projects were brought into effect in several oil fields, including fields in the Swan Hills regions where waterflooding is expected to increase eventual recovery of the original oil in place from the 17 p.c. possible by primary depletion to 40 p.c. Reserves of recoverable crude oil and natural gas liquids were increased from 4,847,000,000 bbl. in 1963 to 6,114,000,000 bbl. at the end of 1964. Much of this increase was due to recalculation of reserves taking into account new waterflood projects. New discoveries accounted for only a small proportion of the increase although eventual delineation of these new oil pools with further drilling will substantially increase reserves, particularly in the Mitsue area near Lesser Slave Lake. This area was the centre of exploratory activity in 1964. The productive horizon, the Devonian Gilwood sandstone, had not hitherto been known to be oil-productive. As a result of intensified exploration, several more Gilwood sand oil pools have been found near Lesser Slave Lake. Large reserves of natural gas were outlined in the Edson region, 130 miles west of Edmonton, and in the Marten Hills, 140 miles north of Edmonton. Important new discoveries of wet natural gas were made south of Grande Prairie.

The first commercial production of oil from the Athabasca bituminous sands is scheduled to begin by October 1967. Construction began on the first full-scale plant for the extraction of oil from the sands following the approval of the application of Great Canadian Oil Sands Limited for a \$190,000,000 project to extract 45,000 bbl. a day of synthetic crude oil from the sands.

Saskatchewan.—For the second successive year, drilling increased sharply in Saskatchewan—by 31 p.c. to a total of 4,200,000 feet. The increase was mainly in the

exploratory category. More lenient regulations concerning land acquisition and production royalties were instituted during 1964 and, as a result, exploration has intensified. Also, a capacity demand for Saskatchewan medium and light crude oil in the Great Lakes region has promoted the oil search. Estimated oil reserves were increased slightly to 610,000,000 bbl., mainly because of the implementation of a waterflood project in the Weyburn field. There were no important new oil discoveries. Of the 1,254 wells completed, 636 were oil wells, 30 were gas wells and 588 were dry.

British Columbia.—Drilling continued to decline in 1964 for the second successive year. No major new oil fields have been discovered during the past few years and this partly accounts for the decrease in drilling, particularly since development of existing fields has been largely completed. A medium-sized oil pool of good productivity, named the Nancy field, was discovered 50 miles north of Fort St. John, just west of the Peejay field and subsequent petroleum exploration and development centred in that area. Farther north, near Fort Nelson, the Clarke Lake gas field, the largest in the province, was prepared for production in order to supply the new gas pipeline connecting to markets in south-western British Columbia. Several important natural gas discoveries were made in the general region of Kotecho Lake. A total of 674,800 feet was drilled in the province; 45 oil wells, 37 gas wells and 60 dry wells were completed.

Manitoba.—During the past decade, the low point of drilling activity in Manitoba was reached in 1962 but since then has increased rapidly and, in 1964, the total footage drilled was the greatest since 1957. Of the total 241,200 feet drilled, 67 p.c. was development and the remainder exploratory. No important oil discoveries were made. One interesting aspect of petroleum exploration in Manitoba was the acquisition of oil shale permits by several oil companies covering several million acres along the Manitoba escarpment of western Manitoba and the adjacent Pasquia Hills region of Saskatchewan. These deposits of low-grade oil shales are being investigated.

Yukon and Northwest Territories.—Eighteen wells were drilled in the Territories compared with six in 1963. The total footage of 113,100 feet was of an exploratory nature. Three gas discoveries were made—one in the Eagle Plains area of the Yukon Territory, one at Beaver River just north of the British Columbia Boundary in the Yukon, and one at Island River in the Northwest Territories just north of British Columbia's Petitot River gas field. The third Arctic Island well, on Bathurst Island, was completed in February 1964, after reaching a depth of 10,000 feet. No important occurrences of oil or gas were found.

Eastern Canada.—In Ontario, 216 wells were completed, of which 33 were oil wells, 55 were gas wells and 128 were dry. Aggregate footage drilled (excluding service wells) was 431,100 feet, 10 p.c. more than in 1963. There were no oil discoveries as important as the 1962 find at Clearville. Four exploratory oil wells and three exploratory gas wells were completed. In addition, 29 oil wells and 52 gas wells were completed in established fields and pools. The development of secondary recovery facilities in the Rodney field resulted in increased production there. A new offshore 'land play' developed in Hudson Bay when most of the southwestern quarter of the Bay, or about 55,000,000 acres, were taken out under exploration permits by several companies. At least one company plans extensive geophysical testing of its offshore holdings.

In Quebec, 10 exploratory wells were drilled but all were dry. No development drilling was carried out at the Pointe du Lac gas field, the site of intensive drilling two years

ago; as yet there has been no commercial gas production from the field. In the Atlantic Provinces, only one well was drilled; this was completed as a dry hole at a depth of 9,853 feet near Pugwash, N.S. Exploration permits covering huge areas of the continental shelf were taken out by several companies. Two main areas are held—the shelf off Nova Scotia extending to just beyond Sable Island and the Grand Banks off Newfoundland. A Federal Government survey recorded a negative gravity anomaly near Cape Breton Island and permits covering the area were issued to a large oil company. During the summer of 1964, considerable seismic reconnaissance was done off Nova Scotia.

Petroleum Refining and Marketing.*—In no other phase of operations has the petroleum industry been more fully developed as in the refining sector. For years prior to 1947, when the Leduc oil discovery was made in Alberta, the refining capacity remained almost steady between 220,000 and 245,000 bbl. daily. Most plants were outmoded and much of the refined products were imported. Marked expansion of facilities followed the Leduc and subsequent oil discoveries, first in the Prairies and then in Ontario and British Columbia as pipelines were built to carry crude to these areas. During the decade of the 1950's modernization of facilities transformed the Canadian refining industry into one of the most modern in the world and expansion of facilities needed to meet the growing demand brought its aggregate capacity to the point where it ranked the third largest in the world after the United States and the Soviet Union. More recently, facilities in other countries such as Japan and the major nations of western Europe have been expanded so that in 1965 Canada's refining industry ranked eighth in terms of crude oil capacity. Table 1 gives, on a regional basis, the growth of the industry to its present size.

**1.—Petroleum Refining Throughput Capacity, by Region,
as at Jan. 1, 1945, 1955 and 1965**

Region	1945		1955		1965	
	bbl./day	p.c.	bbl./day	p.c.	bbl./day	p.c.
Atlantic Provinces.....	34,250	14.8	18,300	3.0	125,500	11.9
Quebec.....	59,000	25.5	210,000	33.9	318,700	30.3
Ontario.....	75,450	32.6	148,800	24.1	306,900	29.2
Prairie Provinces and Northwest Territories.....	41,515	18.0	174,850	28.3	199,910	19.0
British Columbia.....	21,000	9.1	66,500	10.7	101,500	9.6
Canada.....	231,215	100.0	618,450	100.0	1,052,510	100.0

Location has, understandably, a controlling effect on the sources of crude oil that are used. Thus, before large volumes of oil were found in the Prairies, refineries in provinces from Ontario westward depended for the bulk of their oil on the United States and those in the Atlantic Provinces and Quebec relied on the water-borne crudes from the Caribbean and Middle East regions. The eastern region of Canada still relies on the same sources but elsewhere the use of Canadian crude is predominant.

During the same time not only have refineries in Western Canada stopped taking United States oil, but Canadian crude oil has been finding export markets in a number of refining centres. Plants in the Puget Sound region took an average of about 137,000 bbl./day and those in the area east of the Rocky Mountains in the United States took about 141,000 bbl./day. Table 2 shows the regional demand for domestic and foreign oils.

* See also Chapter XIX, Part VI.

**2.—Domestic and Foreign Crude Oil Received at Canadian Refineries,
by Region, 1955, 1960 and 1964**

Region	1955		1960		1964	
	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign
	bbl./day	bbl./day	bbl./day	bbl./day	bbl./day	bbl./day
Atlantic Provinces and Quebec.....	—	210,423	—	337,494	27	391,996
Ontario.....	106,446	27,275	197,555	10,004	281,459	1,300
Prairie Provinces and Northwest Territories.....	133,961	—	145,499	—	181,375	—
British Columbia.....	47,431	—	65,917	—	82,102	—
Canada.....	287,838	237,698	408,971	347,498	544,963	393,296

Natural Gas Processing and Marketing.—Most natural gas found in Canada contains significant quantities of liquid hydrocarbons such as propane, butane, and pentanes-plus or 'natural gasoline'. In addition, a large percentage also contains hydrogen sulphide which is toxic and must be removed but which is easily processed into elemental sulphur. It is worthwhile to recover these valuable accessories to natural gas but it is also important that customers receive a gas that has consistent qualities. Hence a large and intricate gas processing industry has been developed in Canada within the past decade which has involved the outlay of capital totalling in excess of \$325,000,000. Ninety-five plants were operating at the beginning of 1965, 84 of them located in Alberta. Total raw gas capacity of plant was 5,165,000 Mcf. daily. As an indication of the importance of the industry, over 84 p.c. of the marketable gas produced in Alberta, which supplies the bulk of natural gas, came from gas processing plants.

Of the 1,136,000,000 Mcf. of gas supplied by Canada in 1964, 404,000,000 Mcf. was exported to the United States, 505,000,000 Mcf. was sold in Canada and the remaining 227,000,000 Mcf. was used in processing plants, pipelines and the like. In other words, total domestic consumption amounted to 732,000,000 Mcf.

Table 3 shows sales of natural gas in Canada and indicates the significant part that natural gas plays in meeting Canadian energy requirements. During 1964, natural gas supplied roughly 17 p.c. of total energy requirements in Canada.

3.—Sales of Natural Gas in Canada, by Province, 1964 with Totals for 1960-64

Province	Sales			Customers Dec. 31
	Amount	Value	Average Value per Mcf.	
	Mcf.	\$	\$	
New Brunswick.....	63,186	205,046	3.25	2,539
Quebec.....	33,166,492	30,416,512	0.92	242,822
Ontario.....	194,253,775	166,886,369	0.86	628,383
Manitoba.....	27,768,074	18,955,343	0.68	78,339
Saskatchewan.....	45,809,157	21,827,794	0.48	98,775
Alberta.....	160,828,728	51,469,385	0.32	243,588
British Columbia.....	42,612,976	38,222,271	0.90	165,173
Canada, 1964.....	504,503,388	327,982,720	0.65	1,459,619
1963.....	451,598,298	287,534,177	0.64	1,397,138
1962.....	412,061,509	257,589,445	0.62	1,308,085
1961.....	370,739,542	226,678,494	0.61	1,227,658
1960.....	324,468,404	194,074,410	0.61	1,149,085

Subsection 4.—Coal*

Production from Canadian coal mines in 1964 was 7 p.c. higher than in 1963, giving some encouragement to the hard-pressed coal industry. Significant increases in the production of coals of all types and particularly subbituminous and lignite were attained and productivity per man-day increased in some coal mining regions, leading to lower or relatively steady values for all coals.

Since 1955 annual production declined about 3,500,000 tons, consumption about 8,300,000 tons, and imports about 4,750,000 tons. Exports, on the other hand, increased about 700,000 tons in the decade but this bright spot was confined almost entirely to one segment of the industry, being attributable to higher exports of western bituminous coking coal, mainly to Japan. The weak competitive position of Canadian coals is caused by a number of factors, including high production costs because of low productivity in comparison with coal mines in the United States, and high costs of moving coal long distances, particularly bituminous coal from mines in Nova Scotia and New Brunswick to the industrial centres of Ontario and Quebec.

Mechanization of production, underground and surface coal preparation, particularly of slack and fine sizes, and efforts to control quality through coal sampling and analysis have all been increased to enable the industry to supply higher quality products at reduced costs. On the basis of costs per ton, significant improvement was noted in 1964 and increased productivity is expected to continue from the projects undertaken in recent years to improve methods of mining and conveying coal in underground mines.

Assistance to the coal industry was continued by the federal and provincial governments through research programs. The problem of fine coal production continued to receive attention with research directed toward improved methods of mining, beneficiation and combustion. Technical assistance has also been rendered in the field of quality control through sampling and analysis, and studies of the coking properties of coals in relation to their preparation for export markets and their use in prospective steel industries.

Financially, the Federal Government continued assistance to the coal industry through payments administered by the Dominion Coal Board with aid in the acquisition of new equipment and subventions on coal transportation. More than 34 p.c. of the production was moved with the aid of subvention payments; such assistance was applied to a total of 3,924,432 tons, 434,000 tons more than in 1963. The value of this assistance amounted to \$17,194,381 compared with \$17,543,915 in the previous year. Financial assistance amounting to \$2,700,000 was applied to the export of 845,590 tons of coal from Alberta and British Columbia. The Federal Government also made payments in 1964 totalling \$1,741,281 under the Atlantic Provinces Power Development Act, 1958, which indirectly aids the marketing of coal. Mines in Nova Scotia and New Brunswick shipping coal to markets in direct competition with imported residual oil received additional financial assistance. Loans for mine mechanization under the Coal Production Assistance Act amounted to \$180,000 in the year ended Mar. 31, 1964.

Production and Value.—Production of coal in Canada in 1964 increased 7.0 p.c. to 11,319,323 tons. The average value for all coal was \$6.43 per ton. On the employment side, the number of man-days dropped from 2,240,130 in 1963 to 2,227,516 in 1964. In Nova Scotia, the major coal-producing province and where the economy is most affected by declining coal markets, the decrease in coal-mine employment was 2.5 p.c. from 1,565,571 man-days in 1963 to 1,526,027 man-days in 1964. Employment in coal mines in New Brunswick increased 3.9 p.c. and in Alberta 10.2 p.c. but in Saskatchewan and British Columbia (including Yukon) decreased 2.3 p.c. and 4.6 p.c., respectively.

The major part (63.7 p.c.) of the coal produced in 1964 was bituminous, with an average value of \$8.78 a ton at the mine. Subbituminous accounted for 18.6 p.c. of production and lignite for 17.7 p.c. The average value of subbituminous coal was \$2.58

* Figures used in this Subsection are final figures and therefore differ moderately from the preliminary figures used in Tables 6 and 10, pp. 587 and 592, respectively.

a ton and the value of lignite \$1.96. In 1964, production of bituminous coal increased 2.4 p.c., subbituminous 27.2 p.c., and lignite 6.4 p.c.

The proportion of the output won by stripping methods was 42.9 p.c. The output per man-day of coal from Canada's strip mines was 18.57 tons, compared with 3.29 tons from underground mines. This represents an increase of 2.79 tons for strip mines and a slight decrease for underground mines. The over-all output per man-day increased from 4.728 to 5.082 tons.

Consumption, Imports and Exports.—The consumption of coal in Canada was approximately 25,000,000 tons in 1964, compared to about 22,610,000 in 1963. Of this total, about 60 p.c. was imported, and of the imported coal 93 p.c. was bituminous, used mainly in Ontario and Quebec; imports were 12.2 p.c. higher than in 1963. The production of coke used about 5,866,000 tons of coal, of which about 89 p.c. was imported. Sales of coal to the commercial and household heating markets amounted to about 2,596,000 tons. The use of coal by industrial consumers, including thermal-electric power plants, increased 11.8 p.c. to about 13,906,000 tons. There were 1,291,664 tons of Canadian coal exported in 1964, most of it from mines in Western Canada going to the United States and Japan for blending in the manufacture of metallurgical coke. The exports included about 3,800 tons sent to the Island of St. Pierre from Nova Scotia, and 278,336 tons from New Brunswick to the eastern United States.

The manufacture of briquettes decreased from 72,358 tons in 1963 to 59,913 tons in 1964.

Provincial Activities in the Industry.—Coal is produced in five provinces and a large share of the market for the industry is concentrated in Central Canada where there is no coal production. A small amount of coal is also mined in the Yukon Territory. A review of the provincial activities in the industry follows.

Nova Scotia.—Nova Scotia's coal production of 4,293,130 tons, which accounted for almost 38 p.c. of the total Canadian output, was almost 3 p.c. lower than in 1963. This province's coal is mainly high volatile bituminous coking coal mined in the Sydney, Cumberland and Pieter areas, although some non-coking bituminous coal is mined in the St. Rose, Inverness and Port Hood areas of Cape Breton Island. The over-all value at the mines was \$9.98 a ton and the output per man-day was about 2.8 tons.

All Nova Scotia's coal comes from underground mines, which are mostly mechanized. Coal-washing plants which prepare about 27 p.c. of the province's coal production are operated at two of the collieries. About 60 p.c. of the production is shipped to other provinces, mainly Central Canada to be used for industrial purposes; the remainder is used locally for steam-raising, power generation, household and commercial heating and the manufacture of metallurgical coke. In 1964, subvention payments were made on the movement of 2,336,571 tons.

New Brunswick.—New Brunswick's production, of which over 85 p.c. is strip-mined, is entirely high volatile bituminous coal mainly from the Minto area; a small amount comes from strip-mines in the Chipman and Coal Creek areas. The 1964 production of 1,003,362 tons, about 8.9 p.c. of Canada's output, represented an increase of 13.2 p.c. over 1963. Average output per man-day from strip-mines was 5.9 tons and from underground mines 1.7 tons. The coal had an average value at the mines of \$8.43 a ton.

Modern coal-washing plants operated at two of the strip-mining operations mechanically clean more than half of the province's output. A large part of the production is used locally for heating, power generation and processing; in 1964 about 7.5 p.c. was shipped to Central Canada and about 27 p.c. to the United States. Government subventions aided in the moving of 407,120 tons.

Saskatchewan.—Coal produced in Saskatchewan is entirely lignite, mined by stripping in the Bienfait and Estevan areas in the Souris Valley; this is the only active lignite coal-field in Canada. Production was 6.4 p.c. higher in 1964 than in the previous year,

amounting to 1,994,039 tons, which represented 17.6 p.c. of the Canadian production. The average output per man-day was 45.0 tons and the coal was valued at the mine at an average of \$1.96 a ton. This is the cheapest source of coal in Canada. The Estevan area serves the provincially owned Boundary Dam thermal-electric generating station which uses a large share of the total lignite production. Almost 31 p.c. of the 1961 output was shipped to Manitoba and 6.6 p.c. to Ontario for industrial, commercial and household use; the remainder was used within the province for similar purposes. Subvention assistance was given on 128,215 tons.

About 21,680 tons of briquettes were produced from carbonized lignite, a decrease of 38 p.c. from the 1963 output.

Alberta.—Several types of coal are available in Alberta, ranging from semi-anthracite mined in the Cascade area to subbituminous. Coking bituminous coals are present in the Inner Foothills Belt but, because of market conditions, they are at present mined mainly in the Cascade and Crowsnest areas and a large part of the production is exported to Japan for use in metallurgical industries. In several areas of the foothills, lower rank bituminous non-coking coals are available but production is confined to the Lethbridge and Coalspur areas. The other coal areas produce subbituminous coals which made up almost 71 p.c. of Alberta's output in 1964 and are used mainly for household and commercial heating and thermal power generation; increasing quantities are being used for the latter purpose. The four largest producing areas for subbituminous coals are Castor, Drumheller, Pembina and Sheerness and mines in these areas produced more than 88 p.c. of the Canadian subbituminous coal output which amounted to 2,104,912 tons in 1964, more than 27 p.c. higher than in the previous year. The output of bituminous coal increased more than 36 p.c. to 866,221 tons.

Total coal production in Alberta increased 29.7 p.c. to 2,971,133 tons, this being about 26.2 p.c. of the nation's coal output. Of the total, 61.3 p.c. was won by stripping, the average output per man-day being 28.2 tons compared with 4.9 tons for underground mines. The average value of bituminous coal was \$6.61 a ton at the mine, and that of subbituminous coal \$2.58 a ton. Of the provincial production, 1.1 p.c. was shipped to Ontario, 4.1 p.c. (mainly subbituminous) to Manitoba, 9.4 p.c. to Saskatchewan and 8.8 p.c. to British Columbia. Subvention assistance from the Federal Government was applied on the movement of 1,052,526 tons of Alberta and British Columbia coal.

The output of briquettes, which are made from the semi-anthracite and low volatile bituminous coals of the Cascade area and the medium volatile coals of the Crowsnest area, was about 38,000 tons.

British Columbia and Yukon Territory.—More than 93 p.c. of British Columbia's coal output came from the Crowsnest area (East Kootenay district) and most of the remainder came from Vancouver Island, with a small output from mines in the northern mainland. The coals range from high volatile to low volatile bituminous coking coals and over 91 p.c. comes from underground mines. Production in 1964 increased to about 1,050,000 tons, representing 9.3 p.c. of the country's output, and had an average value of \$6.02 a ton at the mine. The average output per man-day was 35 tons for strip-mines and 6.8 tons for underground mines.

Beneficiation facilities located at Union Bay (Vancouver Island) and Michel (East Kootenay) process nearly all of British Columbia's coal production. Of the total 1964 production, 13.4 p.c. was shipped to Manitoba, 2.1 p.c. to Ontario and small quantities to Alberta and Saskatchewan. About 396,000 tons of bituminous coking coal from the Crowsnest area were exported, some to the United States but most of it to Japan for blending in the manufacture of metallurgical coke.

In the Yukon Territory, about 7,000 tons of coal were mined from a single underground mine with an average output per man-day of 3.1 tons. This coal was valued at \$13.58 a ton and was all used locally.

Section 2.—Government Aid to the Mineral Industry

Subsection 1.—Federal Government Aid

Federal assistance to the mining industry takes the form of the provision of detailed geological, topographical, geodetic, geographical and marine data which are of basic importance to the discovery and development of the mineral resources of Canada; the provision, through metallurgical research, of technical information relating to the processing of ores, industrial minerals and fuels on a commercial scale; financial and technical assistance to the ailing coal industry; assistance to the gold mining industry under the Emergency Gold Mining Assistance Act, and certain tax incentives (see Chapter XXIII, Section 2 on Taxation in Canada).

The Department of Mines and Technical Surveys.*—The federal Department of Mines and Technical Surveys came into being in January 1950 in the reorganization of the former Department of Mines and Resources. The Department has six branches—Surveys and Mapping Branch, Geological Survey of Canada, Marine Sciences, Mines Branch, Observatories Branch, and Geographical Branch—and its functions include the administration of the Emergency Gold Mining Assistance Act, the Explosives Act and the Canada Lands Act.

The *Surveys and Mapping Branch* provides the base maps required for use in the development of Canada's natural resources, is responsible for legal surveys of federal lands and provides a national system of levelling and precision surveys for use as geodetic control by federal, provincial and private agencies. The functions and current operations of the Branch are covered in Chapter I, Section 3 on Federal Government Surveying and Mapping (pp. 17–19). The compilation and printing of maps and charts of all types for which data are secured by departmental surveying and research operations is conducted by the Map Compilation and Reproduction Division of this Branch.

The *Geological Survey of Canada Branch* aims, through systematic research in the geology of Canada, to provide knowledge basic to mineral inventories as well as to the development of mineral and other resources and to increase the fundamental knowledge of geological processes and events. In its field activities, it gives priority to the reconnaissance coverage of the country delimiting those areas of economic and scientific significance for subsequent detailed investigations, such as the unravelling of structures, stratigraphic successions and geological history in areas of highly deformed sedimentary rocks and the search for the fundamental causes of localization of orebodies.

Its laboratory activities vary from the provision of fundamental chemical and physical data on the rocks and other materials, collected by the field parties, to the development of new analytical techniques, the determination of new or unknown minerals, the investigation of physical properties of certain rocks and minerals and the design of electronic equipment for use in its geophysical and geochemical programs.

Probably one of the greatest contributions made to geology by the Geological Survey in recent years has been in age determination. In 1954 the Survey set up an age-determination laboratory and has produced more than 1,000 potassium-argon ages. The method was developed in the late 1940's for dating rocks formed during the five sixths (3,600,000,000 years) of the earth's history known as the Precambrian era. Previously, age determination was limited to the use of fossils, a method applicable only to sediments and rocks deposited since the start of the Cambrian Period nearly 600,000,000 years ago. The result has been a radically changed picture of the geological subdivisions of the Canadian Shield. The Survey is also dating geological phenomena in the other geological provinces and is incorporating the results on a tectonic map of Canada as Canada's contribution to a world tectonic map, scheduled for publication by the next International Geological Congress.

* Revised, under the direction of the Deputy Minister, in the Editorial and Information Division, Department of Mines and Technical Surveys, Ottawa.

As part of the Upper Mantle Project, a five-year international study of the earth's upper mantle, the Geological Survey is making a comprehensive petrological and mineralogical study of the Muskox ultrabasic intrusion in the Northwest Territories to obtain information on the origin, mode of emplacement and subsequent geological history of the intrusion, which rates as one of the world's finest examples of a differentiated ultrabasic body.

To assist industry in the location of buried orebodies, concealed by glacial deposits and soil and not readily found by standard prospecting means, the Survey has set under way biogeochemical studies to determine the influence on overlying vegetation of various metal elements in soil from the vicinity of a known major base-metal deposit in northern Ontario. It is testing the extent of absorption of certain ore elements by various types of trees.

The growing importance of groundwater supplies to the economy of Canada, particularly in the Prairie Provinces where supplies are limited, has led the Survey to increase its studies of the various factors that determine the availability and quality of groundwater. In the Prairie Provinces, it is studying several drainage basins to determine the nature of groundwater conditions and the water balance. In one such study, that of the relationship of groundwater and vegetation, for instance, it has found that losses in flow in major rivers can be accounted for in the use of water by vegetation along the banks.

Geophysics, which has become a major arm of geological research, is dealt with in Chapter VIII on Scientific and Industrial Research, pp. 404-405.

The *Marine Sciences Branch* was formed in 1962 to meet the need for oceanographic information on Canada's coastal and inland waters for defence and civilian purposes. Its program in Atlantic and sub-Arctic waters is carried out from the Bedford Institute of Oceanography at Dartmouth, N.S. A similar institute is to be built on the West Coast at Colwood near Victoria, B.C.

In the Arctic, the need for reconnaissance surveys in the navigable channels of the archipelago system (carried on for the past ten years through the use of ice-breakers) is giving way to more precise and detailed studies of the character and outflow of the waters in Baffin Bay and Davis Strait to gain a more thorough understanding of oceanographic influences in the North Atlantic. These studies will be expanded gradually to the level in which quantitative current measurements will be made on a routine basis in the Arctic, supported with predetermined oceanographic research projects. Atlantic studies cover the circulation and mixing of the waters of the North Atlantic Ocean, with special attention being given to the behaviour of the Gulf Stream beyond the Tail of the Grand Banks and the circulation and mixing of the Gulf Stream and the Labrador Current.

The Gulf of St. Lawrence is proving to be an ideal marine laboratory for the study of both estuarine and oceanic phenomena and for the testing and evaluation of instruments, methods and techniques. Institute oceanographers are studying the temperature-salinity characteristics in summer and winter and are setting up a large-scale observational program of oceanic factors, including current-meter recording.

Research in tidal prediction and in the forecasting of water-level changes caused by non-astronomic forces is carried on under Branch auspices in Ottawa.

In the study of energy exchanges across the air-sea interface, a long-term project, most of the effort to date has been on the development of instruments and measuring techniques. In 1964, oceanographers from the Bedford Institute and from the United States oceanographic centre at Woods Hole near Boston carried out a successful trial of their instruments on a stable platform in the Caribbean Sea just north of Aruba near Venezuela, and in 1965 BIO oceanographers measured wind stress, water currents and energy transports across the interface from a stable platform off North Point, P.E.I. The Canadian Oceanographic Data Centre, operated by the Branch at Ottawa, processes all data collected by the Canadian oceanographic community and is also responsible for international data exchange.

The *Mines Branch* carries out a continuing program of applied and basic research to discover new and better methods of mining, extraction and refining, and new uses for minerals. Its skills, technical knowledge and specialized equipment are at the service of the Canadian mineral industry, government agencies and research organizations. Today the Canadian mineral industry is faced with greatly increased competition in world markets, mainly because of technological advances and higher production in other countries. Added to this is the trend in Canada toward the recovery of complex ores and the consequent need of increased research to enable the maximum economic extraction of metals. This changing situation is reflected in Mines Branch activities which, while still including short-term research to solve immediate problems, are nevertheless being pointed more and more in the direction of long-term research in the interests of future technological advances. This trend is seen, for instance, in the work on flotation for the extraction of metal values, highly disseminated throughout the ore. The usual great variety of pilot runs on ores from all parts of the country are being carried out but, in addition, a series of studies based on modern concepts of this electro-chemical phenomenon is under way.

In hydrometallurgy, a thorough study is being made of bacterial leaching, an economic method of producing uranium, to determine the factors controlling bacterial action and seek maximum recovery by this method. Work on sulphide minerals, which form a large part of Canada's metal resources, further illustrates the trend toward basic research to improve knowledge to allow higher recoveries of metal values. Branch physicists, mineralogists, chemists and spectro-chemists have combined forces in a comprehensive study of the structure of these minerals.

Branch scientists have developed a process for recovering vanadium from fly ash produced in a Canadian oil refinery from the burning of residues resulting from the refining of Venezuelan crude oil. The product of this new process contains over 90 p.c. vanadium pentoxide and is suitable for the manufacture of ferro-vanadium, the form of vanadium for which there is the most market. No vanadium is produced in Canada.

In projects designed to find new uses for metals, interesting results have been obtained. It has been found, for instance, that the presence of as little as one ten-millionth of an inch thickness of gold on ultra high strength steel, prior to cadmium plating, eliminates potential static fatigue damage.

The Branch also works to improve products for marketing. For instance, a research program was undertaken in 1957 jointly with the zinc industry to obtain a more fundamental understanding of the galvanizing process. This has led to better control and an improved product which, in turn, means an improved domestic and export market for Canadian galvanized wares and Canadian zinc.

In fuels research, much attention is being devoted to the development of processes to beneficiate Canada's large resources of heavy crude oils and bitumens to supply the need when the better grade oils are less abundant. Branch scientists, for instance, have constructed and are testing a combined liquid-and-vapour-phase pilot plant, operating at pressures up to 10,000 psi. The plant will be used to process heavy crude oils to finished products and will serve as a cost indicator and as a training ground for mechanical and chemical engineers.

The research activities of the Branch have also been geared to meet the need for increased knowledge in ground and rock mechanics. Indeed, so important has research in this field become that the Branch has opened, at Elliot Lake in northern Ontario, a major centre of mining research to serve as a central source of information for the Canadian mineral industry.

The major activities of the *Observatories Branch* in its two main units—the Dominion Observatory at Ottawa, Ont., and the Dominion Astrophysical Observatory at Victoria, B.C.—are in the field of astronomical and related research, and these activities are covered in Chapter VIII, pp. 405–406. The geophysical work of the Dominion Observatory, which has a definite relation to the locating of mineral deposits, is covered in the same Chapter, pp. 404–405.

The *Geographical Branch* studies the natural landscape of Canada and man's impact on it. Its main research effort is in the fields of economic geography, geomorphology, glaciology, cartography and toponymy. Emphasis in economic geography is on regional studies and the computer analysis of the flow of commodities and people to provide basic data and recommendations for regional planning and policy making. Major emphasis in geomorphology has been on Baffin Island where Branch geographers carried out their fifth successive summer operation in 1965. The studies include a detailed evaluation of the history of deglaciation over the past 12,000 years and of the associated changes in the positions of land and sea.

The Branch is mapping Canada's 16 largest cities at the request of the federal Emergency Measures Organization; the maps are on a scale of 1:25,000 and are in colour. The mapping of Vancouver, Montreal, Toronto, Ottawa and Windsor has been completed.

The Branch substantially modified its land-use program in 1961 to meet the requirements of the Canadian land inventory section of the Agricultural Rehabilitation and Development Act (see p. 450). It is at present mapping land use of the settled areas of Ontario, Quebec and the Atlantic Provinces and co-ordinating the mapping of relevant sections of the western provinces, which is being undertaken on a contract basis. The end product will be a series of transparent cronaflex map sheets, on a scale of 1:50,000, to be used as computer input along with maps showing soils and climatic factors for evaluation of land capability on a regional scale.

The Branch has also studied high arctic landscapes, particularly on Melville and Boothia Peninsulas, Axel Heiberg, Cornwallis, Prince Patrick and Eilef Ringnes Islands, and has issued several publications on the special surface characteristics of this high arctic "periglacial" area. The Cypress Hills of Saskatchewan and Alberta is slated for intensive geomorphological studies over the next several years.

In glaciology, attention is focused on participation in the International Hydrological Decade. Branch geographers will investigate a series of small glaciers running east-west from the dry Rocky Mountain east slope to the wet west flank of the Coast Range of British Columbia to assess the glacial contribution to the water resources of this vital water-surplus area. They will prepare an inventory of Canadian glaciers, their past history and current condition, and continue the study of the Barnes ice cap on Baffin Island and the distribution of sea ice in the Queen Elizabeth Islands. The knowledge gained from the latter project is expected to lead to long-range ice forecasting in the area.

A desk atlas of Canadian geography, one of the Department's centennial projects, is in preparation.

In addition to the above Branches, the Department contains a *Mineral Resources Division* which provides a mineral information service that is freely used by government departments, mining and allied industries and others interested in mining or its significance in the Canadian economy. A mineral resources index inventory is maintained of all known occurrences and of mines, both active and potential. The Division makes economic studies of different phases of the mining industry. It administers the Emergency Gold Mining Assistance Act, prepares reports, on request, to aid in the administration of such matters as tax exemptions on new mining properties, and prepares reports and briefs on general legislation, taxation and tariff matters connected with the mineral industry. The Division is widely known for its publications, among the most valuable of which are the annual reviews of production, marketing and other matters concerning 61 minerals. It issues more detailed economic studies of metals and fuels of current interest and prepares annual lists of metallurgical works, metal and industrial mineral mines, milling plants, coal mines and petroleum refineries. Also published are special monographs on mining laws, taxation and subjects of particular interest to the mineral industry.

The Dominion Coal Board.*—The Board was established by the Dominion Coal Board Act (RSC 1952, c. 86) which was proclaimed on Oct. 21, 1947. By this Act the

* Revised under the direction of C. L. O'Brian, Chairman of the Dominion Coal Board, Ottawa.

Board was constituted a department of government to advise on all matters relating to the production, importation, distribution and use of coal in Canada. The Board is also charged with the responsibility of administering, in accordance with regulations of the Governor in Council, any coal subventions or subsidies voted by Parliament.

The Board is empowered to undertake research and investigations with respect to:—

- (1) the systems and methods of mining coal;
- (2) the problems and techniques of marketing and distributing coal;
- (3) the physical and chemical characteristics of coal produced in Canada with a view to developing new uses therefor;
- (4) the position of coal in relation to other forms of fuel or energy available for use in Canada;
- (5) the cost of production and distribution of coal and the accounting methods adopted or used by persons dealing in coal;
- (6) the co-ordination of the activities of government departments relating to coal; and
- (7) such other matters as the Minister may request or as the Board may deem necessary for carrying out any of the provisions or purposes of the Act.

In addition, the Dominion Coal Board Act provides authority in the event of a national fuel emergency to ensure that adequate supplies of fuel are made available to meet Canadian requirements.

The Act authorizes a Board membership of seven, including the chairman. The latter is the Chief Executive Officer, has the status of a Deputy Minister, spends full time on the Board's business, receives a salary and is in charge of a civil service staff. The other members, men of long experience and expert knowledge of aspects and regions of the Canadian coal industry, receive *per diem* payments and travelling expenses while attending Board meetings or while otherwise officially engaged on Board business.

In general, the Board and its staff constitute a central agency through which representations on coal matters are made to the Government from any sector of the industry or the public. Conducting a continuous study of developments and problems within the industry, exchanging information with provincial authorities concerned with coal and with national authorities and agencies in other countries and maintaining the most complete files of Canadian coal information in existence, the Board makes recommendations to the Government and reports to Parliament through the Minister of Mines and Technical Surveys. In view of the growing impact of oil and natural gas on the markets for Canadian coal, the Board and its staff have intensified the study of the relation of the competing sources of energy and of possible new outlets for the solid fuel.

Since its inception, the Board has worked toward the co-ordination of the activities, relating to coal, of various government departments, agencies and other bodies. Its own responsibilities in research on the mining and utilization of coal have been carried out mainly by delegation to the Fuels and Mining Practice Division, Mines Branch, Department of Mines and Technical Surveys. On occasion, the Board has recommended or commissioned specialized types of research by experts outside the government service—for example, the studies resulting in the Christie Reports which became influences leading to the enactment of the Atlantic Provinces Power Development Act (SC 1958, c. 25) and the establishment of a power grid in the Maritimes. As a contribution to the co-ordination of coal research and to the dissemination to the industry of technical information resulting from research, the Board initiated the now annual Dominion-Provincial Conferences on Coal. The Dominion Bureau of Statistics collects most of the statistical information required by the Board.

Government purchases of fuel, which constitute an important outlet for coal, claim a part of the time of the Board's staff in an advisory capacity. Advice on fuel matters is also continuously available to all government departments and agencies. A senior official of the Coal Board is chairman of the Interdepartmental Fuel Committee, which advises on the supply, purchase and utilization of fuel for the Department of National Defence, and of the Dominion Fuel Committee, which is organized along similar lines as an advisory body to other government departments.

The subvention assistance on the movement of Canadian coals, which the Board administers, is authorized from year to year by votes of money by Parliament; payments are in accordance with Regulations established by Order in Council. This assistance, which has been provided in varying degrees for the past 30 years, was designed to further the marketing of Canadian coals by equalizing as far as possible the laid-down costs of Canadian coals with imported coals. During the year ended Mar. 31, 1964, a total of 3,836,313 tons of coal was shipped under subvention and \$18,341,784 was paid in assistance; in 1964-65, the figures were 4,857,453 tons and \$21,602,195, respectively. Costs and conditions of the coal industry being subject to variations, the Board must review from time to time the rates of subvention and the areas where the assistance is required.

As agent to the Minister of Mines and Technical Surveys, the Board receives applications and administers loans under the Coal Production Assistance Act (RSC 1952, c. 173, as amended by SC 1958, c. 36; SC 1959, c. 39; SC 1960-61, c. 20; and SC 1962-63, c. 13). The Board also administers payments under the Canadian Coal Equity Act (RSC 1952, c. 34), which provides a subsidy on Canadian coal used in the manufacture of coke for metallurgical purposes. In the year ended Mar. 31, 1964, payments under this Act totalling \$236,108 were made on 476,986 tons of coal and in the following year payments totalling \$212,772 were made on 429,843 tons.

Emergency Gold Mining Assistance Act.—Under this Act, which came into force in 1948 (RSC 1952, c. 95), financial assistance is provided to marginal gold mines to counteract the effects of increasing costs of production and a fixed price for gold. By enabling gold mines to extend their productive life, the subventions help communities dependent on gold mining to adjust gradually to diminishing economic support.

Application of the Act was extended for four years to the end of 1967 on Dec. 12, 1963. The amending legislation provides a restriction on the payment of assistance to new lode gold mines commencing production after June 30, 1965. A lode gold mine brought into operation after that date will be eligible for assistance only if the mine provides direct support to an existing gold-mining community. A gold mine will be deemed to provide such support if the majority of the persons employed at the mine reside in one or more of a number of gold-mining communities which are specified in the Act.

The Act is administered by the Department of Mines and Technical Surveys with the aid of the Office of the Comptroller of the Treasury in accounting matters. Since the inception of the Act, the amount of assistance payable to the operators of a gold mine has been calculated by a formula consisting of two factors: the "rate of assistance" which is based on the cost per ounce of gold produced from the mine, and the "assistance ounces" which are a specified proportion of the total ounces of gold produced.

The amount of assistance payable to the operator of a gold mine is computed under the current formula by adding 25 p.c. to the product of the rate of assistance and the number of assistance ounces. The number of assistance ounces is two thirds of the total ounces produced and sold to the Royal Canadian Mint by a mine in a calendar year. The rate-of-assistance factor is two thirds of the amount by which the average cost of production per ounce of gold from the mine during a calendar year exceeds \$26.50. The maximum rate of assistance of \$12.33 per ounce is attained when the average cost of production per ounce of gold reaches \$45. The amount of assistance per ounce increases as the average cost of production per ounce increases from \$26.50 to \$45.

The cost of production of gold from a mine includes mining, milling, smelting, refining, transportation and administration costs. Allowances are made for depreciation, preproduction costs and expenditures on exploration and development on the mine property in accordance with the Regulations.

The amounts paid to operators of gold mines to Mar. 31, 1965 for the years 1948 to 1964, inclusive, totalled \$201,406,057 on a production of 49,007,675 oz.t. of gold produced and sold in accordance with the requirements of the Act. The assistance payable for gold produced and sold under the Act in the calendar year 1964 is estimated to be \$16,320,000.

Subsection 2.—Provincial Government Aid*

Newfoundland.—The Newfoundland Government, through its Mines Branch, provides several valuable services to those interested in prospecting and mining. It publishes, for sale at nominal cost, geological reports, geophysical maps and compilations of general data pertaining to specific areas and makes available, from unclassified files, various other information to interested parties. It identifies specimens sent in from Newfoundland and Labrador and assays by chemical means those that warrant such assessment. If good specimens from a known area warrant further investigation, a geologist from the Department of Mines, Agriculture and Resources is available to visit the locality and give advice. A complete set of minerals and rocks commonly found in Newfoundland, together with covering literature, is available at a nominal fee to any person on request. Prospector's or miner's permits are issued by the Department and claims are registered.

Nova Scotia.—Under the provisions of the Mines Act (RSNS 1954, c. 179), the Government of Nova Scotia may assist a mining company or operator in the sinking of shafts, slopes, deeps and winzes and the driving of adits, tunnels, crosscuts, raises and levels. This assistance may take the form of work performed under contract, the payment of bills for materials and labour, or the guarantee of bank loans. Any such work must be approved by the Department of Mines. Mining machinery and equipment to be used in searching for or testing and mining minerals may be made available through the Government. Such equipment is under the direct supervision of the Chief Mining Engineer.

The Government of Nova Scotia is also empowered to make any regulations considered necessary for increasing the output of coal. Such regulations cover the appropriation, on payment, of unworked coal lands, the operation of coal mines, and loans or guarantees for loans. Close co-operation is maintained with the Federal Government in carrying out federal regulations made to secure increased production and economical distribution of coal from the mines of the province.

New Brunswick.—The Mines Branch of the Department of Lands and Mines has five divisions. The *Mineral Lands Division* administers the disposition of Crown mineral rights including the issuing of prospecting licences, recording of mining claims, issuing of mining licences and leases and other matters pertaining thereto. Detailed and index claim maps are prepared for distribution. The *Mine Inspection and Engineering Division* administers the safety regulations governing operations under the Mining Act. All mines are regularly inspected, laboratory facilities are maintained and certain equipment used in mines must be approved by the Division. The *Geological Division* carries on general and detailed geological mapping and investigation. Maps and reports are prepared for distribution, mineral and rock specimens are examined for prospectors and preliminary examinations of mineral prospects are made when requested and circumstances warrant. The *Mine Assessment Division* is responsible for the collection of mining taxes and royalties and the preparation of statistics on mineral production. The *Bathurst Division* serves as recording office for northeastern New Brunswick. In addition, claim maps as well as topographical, geological and aero-magnetic maps are available for perusal and distribution. The staff is prepared to provide information concerning the Mining Act and the use of various types of maps.

Quebec.—The Department of Natural Resources administers general mining in the province, under authority of the Quebec Mines Act (RSQ 1941, c. 196).† The Department has two Branches—the Geological Services Branch and the Mining Services Branch—and, in addition, operates research laboratories and a pilot-plant.

The work of the *Geological Services Branch* is conducted through a Geological Exploration Division, a Mineral Deposits Division, a Mapping Division and a Water, Gas and Oil Division. It is responsible for the geological surveying of Quebec territory, with a view to

* Compiled from material supplied by the respective provincial governments.

† Replaced by a new Mines Act, effective Jan. 1, 1966.

promoting the development of the province's mineral resources. Yearly expeditions in the field provide information upon which detailed reports on various districts and geological maps are prepared for the use of interested persons. A unique mapping index is maintained through which prospectors may quickly obtain accurate information of value to their operations. The Water, Gas and Oil Division conducts hydro-geological surveys in quest of subterranean water and supervises drilling and boring operations undertaken by private companies in search of natural gas and oil.

The *Mining Services Branch* includes: General Mining Division, a Civil Engineering Division and a Mines Inspection Division. It issues prospecting and development permits, grants mining lands for working purposes, and collects fees for mining rights. It is responsible for the inspection of mines, quarries and processing plants to ensure that operations are consistent with regulations and to ensure the safety of mine workers. A trained rescue crew of about 375 members operates as three main groups and nine secondary groups. In addition, all workers in active underground mines are trained in rescue operations. The Department undertakes the construction and maintenance of mine roads as authorized under the Mines Act; it has constructed and paid the full cost of certain highways leading to new mining districts. In addition, to avoid the establishment of slums in the vicinity of mining enterprises, the Department regulates the use of the land and authorizes the building of well-organized residential areas.

Laboratories, operated for the use of prospectors, geologists, engineers and mine operators, include equipment for mineralogy, petrography, the dressing of ore, wet and dry assays, spectrography or X-ray photography. Mineral determinations are made free of charge but the assaying of ore content is subject to a fee; free coupons are issued by the Department to be used by prospectors for payment of assays. The laboratories have patented 12 new processes for the extraction and treatment of minerals and, because of the development of such new metallurgical processes, certain minerals once deemed valueless are now of great commercial importance.

To provide for the future development of the mining industry, scholarships are granted to students wishing to follow a career in geology, mining and metallurgical engineering, as well as to students in hydrology or other relevant fields of science (hydro-electricity, hydraulics or meteorology). The Department, in co-operation with universities in Quebec and Montreal, gives yearly courses in prospecting and lectures are given by departmental geologists and engineers at various points in the province.

Ontario.—The Ontario Department of Mines renders a multiplicity of services of direct assistance to the mining industry within the province. The *Mining Lands Branch* of the Department handles all matters dealing with the recording of mining claims, assessment work, etc., and the preparation of title to mining lands. As a service to the mining public, individual township maps are prepared and kept up to date showing lands open for staking and recorded and patented claims therein. District Mining Recorders maintain offices at strategic locations throughout the province. The *Geological Branch* carries on a continuing program of geological mapping and investigation and prepares, for the use of the public, detailed reports and maps of the areas studied. A program is under way, in co-operation with the Geological Survey of Canada, through which the whole province is to be flown and mapped in a series of airborne magnetometer surveys. In many active areas of the province, resident geologists gather and make available to the public information concerning geological conditions, exploration and development within their respective districts. A geologist specializing in industrial minerals investigates methods of treatment and recovery of such minerals and compiles data on the uses, specifications and markets for such products. During the winter months, courses of instruction for prospectors are held in various centres throughout the province.

The work done by the *Laboratory Branch* includes wet analyses and assays of metal and rock constituents on a custom fee basis, as well as mineralogical analyses and physical testing. The same service is given free of charge to holders of valid assay coupons issued for the performance of assessment work on mining claims. The *Temiskaming Testing*

Laboratories, situated at Cobalt, operate a bulk sampling plant mainly to assist the producers of the area in marketing their silver-cobalt ores; they also perform fire assays and chemical analyses. The *Inspection Branch* administers the operating rules of the Mining Act which call for the regular examination of all operating mines, quarries, sand and gravel pits and certain metallurgical works with a view to ensuring proper conditions of health and safety to the men employed. District offices to serve the local areas are maintained in the major mining centres of the province. Mine rescue stations in the principal mining sections are operated under the supervision of the Branch and all hoisting ropes in use at mines are periodically tested by a Branch-operated cable-testing laboratory.

Since 1951 the Department has been engaged in a road-building program to give access to mineralized areas and open them for full development. In 1955 this became an interdepartmental project with other interested departments participating through an interdepartmental committee of Ministers which decides on priorities and locations. Actual construction is carried out by the Department of Highways. The federal-provincial Roads-to-Resources program was inaugurated in Ontario in 1959; under the terms of agreement, the federal and provincial governments share equally in the cost of constructing roads to otherwise inaccessible areas (see also the Transportation Chapter, Part III, Section 2).

The *Public Relations Office* of the Department carries out a regular publicity and information program and maintains a library of films on mining subjects which are available for free loan to the public. Each year, displays pertaining to mining are prepared and presented at the Canadian National Exhibition and elsewhere in the province.

Manitoba.—The Mines Branch of the Manitoba Department of Mines and Natural Resources offers five main services of assistance to the mining industry: maintenance, by the Mining Recorder's offices at Winnipeg and The Pas, of all records essential to the granting and retention of titles to every mineral location in Manitoba; compilation, by the geological staff of the Branch, of historical and current information pertinent to mineral occurrences of interest and expansion of this information by a continuing program of geological mapping; enforcement of mine safety regulations and, by collaboration with industry, introduction of new practices such as those concerned with mine ventilation and the training of mine rescue crews which contribute to the health and welfare of mine workers; and maintenance of a chemical and assay laboratory to assist the prospector and the professional man in the classification of rocks and minerals and the evaluation of mineral occurrences.

Manitoba also aids the mining industry by assisting in the construction of access roads to mining districts.

Saskatchewan.—Assistance to the mining industry in Saskatchewan is administered by the Department of Mineral Resources. The *Mineral Lands Branch* of the Department is responsible for administering the Pre-Cambrian Assistance Program. This Program, designed to stimulate development and utilization of the mineralized areas of northern Saskatchewan, offers to industry a 50-p.c. rebate of approved exploration expenditures on a specified area or property to a maximum of \$50,000 a year for each individual or company and a maximum of \$150,000 on any one area or property. This Branch is also responsible for making disposition of all Crown minerals and maintains records respecting areas let out by lease, permit or claim. Recording offices, located at Regina, La Ronge, Uranium City and Flin Flon, assist the public in determining the lands available and accept applications.

Officers of the *Engineering Branch*, under the authority of the Mines Regulation Act, make regular examinations of all mines to ensure proper conditions for the health and safety of the men employed. Safety education, particularly in the form of first aid and mine rescue instruction, is also a part of the work of this Branch. All Branch officers are stationed at the Regina headquarters.

The Precambrian Geology Division of the *Geological Sciences Branch* conducts geological surveys in the shield areas of the province and publishes maps and reports for the information and guidance of the industry. Resident Geologists are maintained at Uranium City and La Ronge and at the latter centre a laboratory provides for the storage and examination of core and samples. The Division processes exploration data and assessment work to be made available for inspection by the industry.

Alberta.—Alberta Government assistance to the mining industry is diversified in character. The Mines Division of the Department of Mines and Minerals regulates coal mines and quarries and maintains standards of safety by inspection and certification of workers. The Workmen's Compensation Board also maintains safety standards and trains mine rescue crews. The oil and gas industries are served in a similar way by the Oil and Gas Conservation Board. Its regulatory measures, however, are also concerned with preventing the waste of oil and gas resources and with giving each owner of oil and gas rights the opportunity of obtaining a fair share of production. This Board compiles periodic reports and annual records which are of invaluable assistance in oil development in Alberta. The mining industry is also served by the Research Council of Alberta which has made geological surveys of most of the province and has carried forward projects concerned with the uses and development of minerals. The Council has studied the occurrence, uses and analyses of Alberta coals and their particular chemical and physical properties, the use of coals in the generation of power, and the upgrading and cleaning of coal, and has also studied briquetting, blending, abrasion loss, shatter and crushing strength, asphalt binders and dust-proofing of coal. Studies have been made of glass sands, salt, fertilizers, cement manufacture and brick and tile manufacture. (See also pp. 408-409.)

The province from time to time has had commissions examine various aspects of the mining industry when it has considered that their findings would be of assistance in developing such industries. The province, together with the Canadian Association of Oil Well Drilling Contractors and the Western Canada Petroleum Association, maintains a detailed supervisory and safety training program concerned with the drilling of oil and gas wells. Of assistance also to mining companies and oil companies are the special deductions provided for in the Alberta Income Tax Act. These follow the parallel provisions in the federal Income Tax Act.

British Columbia.—The Department of Mines and Petroleum Resources of British Columbia provides the following services: detailed geological mapping as a supplement to the work of the Geological Survey of Canada; free assaying and analytical work for prospectors registered with the Department; assistance to the prospector in the field by departmental engineers and geologists; grub-stakes, limited to a maximum of \$700, for prospectors; assistance in the construction of mining roads and trails; and inspection of mines to ensure safe operating conditions.

Section 3.—Mining Legislation

Federal Mining Laws and Regulations.—The Federal Government administers mining laws in the Yukon Territory, the Northwest Territories and certain other lands vested in the Crown in the right of Canada. The Yukon Quartz and Placer Mining Acts and the Canada Mining Regulations which are applicable to the Northwest Territories and other Crown lands are administered by the Resource Management Division, Resource Development Branch, Department of Northern Affairs and National Resources. Minerals underlying federal land under grants are reserved to the Crown, and mining rights may be acquired by staking mineral claims under the appropriate Acts or Regulations. Twenty-one-year leases of claims may be issued and these leases may be renewed. The disposal of mineral rights underlying Indian reserves is under the administration of the Department of Citizenship and Immigration and is subject to the consent of the Indians occupying the reserve and to the treaties relating thereto.

The Northwest Territories Quartz Mining Regulations were replaced by the Canada Mining Regulations, Mar. 3, 1961, amended in 1962 and 1963. The new Regulations provide for the exploration and development of minerals in the Northwest Territories and for the exploration and development of minerals underlying territorial waters of Canada and lying outside any of the provinces and the Yukon Territory. The revised Regulations require a prospector's licence to enter, locate and prospect on lands subject to the Regulations. However, a prospector's licence is not required to maintain claims that are in good standing.

Any individual over 18 years of age or any joint stock company incorporated or licensed to do business in Canada may hold a prospector's licence. Claim tenure is limited to ten years from the date of recording. At the end of ten years, the claim owner must apply for a lease or relinquish his rights. No lease will be granted to an individual unless the Minister of Northern Affairs and National Resources is satisfied that the applicant is a Canadian citizen and will be the beneficial owner of any interest acquired under such lease; no lease will be granted to a corporation unless the Minister is satisfied that at least 50 p.c. of the issued shares of the corporation are owned by Canadian citizens or that the shares of the corporation are listed on a recognized Canadian stock exchange and that Canadians will have the opportunity of participating in the financing and ownership of the corporation.

Any new mine beginning production after the Canada Mining Regulations came into force will not be required to pay royalties for a period of 36 months, starting from the day the mine comes into production. Production date is established as the date determined under the provisions of the Income Tax Act.

Oil and Gas Legislation.—The Federal Government administers oil and gas laws and regulations in the Yukon and Northwest Territories through the Resource Management Division, Resource Development Branch, Department of Northern Affairs and National Resources, Ottawa. All land in both territories is, in the first instance, owned by the Federal Government, complete with under-rights. These include oil and gas rights. When title to land is granted by letters patent, surface rights only are conveyed and under-rights continue to be vested in the Federal Government, which may dispose of them under appropriate legislation. Nine-year to 12-year permits to explore for oil and gas and 21-year oil and gas leases are available.

The Government has set up the Canada Oil and Gas Land Regulations and the Canada Oil and Gas Drilling and Production Regulations, both dated June 6, 1961 and amended in 1963 and 1964. They also include provisions for the exploration, development and production of oil and gas from land under all sea-coast waters of Canada which are not within any province.

An oil and gas exploration permit may be issued to any individual over 21 years of age or to any joint stock company incorporated or licensed to do business in Canada, or incorporated in any province of Canada. Permits are issued in periods of nine, 10 or 12 years, depending on the location, by which times the permittee is expected to apply for an oil and gas lease or relinquish his rights. No oil and gas lease will be issued to an individual unless the Minister of Northern Affairs and National Resources is satisfied that the applicant is a Canadian citizen and will be the beneficial owner of any interest acquired under such lease, or to a corporation unless the Minister is satisfied that at least 50 p.c. of the issued shares of the corporation are beneficially owned by persons who are Canadian citizens or that the shares of the corporation are listed on a recognized Canadian stock exchange, and that Canadians will have an opportunity of participating in the financing and ownership of the corporation.

Provincial Mining Laws and Regulations.*—All Crown mineral lands lying within the boundaries of the several provinces (with the exception of those within Indian reserves, National Parks and other lands which are under the jurisdiction of the Federal Government) are administered by the respective provincial governments.

The granting of land in any province except Ontario and Nova Scotia no longer carries with it mining rights upon or under such land. In Ontario mineral rights are expressly reserved if they are not to be included. In Nova Scotia no mineral rights belong to the owner of the land except those pertaining to gypsum, limestone and building materials, and the Governor in Council may declare deposits of either limestone or building materials to be minerals. Such declaration is to be based on economic value or to serve the public interest. In such case, the initial privilege of acquiring the declared minerals lies with the owner of the surface rights who must then conform with the requirements of the Mines Act. In Newfoundland, mineral and quarry rights are expressly reserved. Some early grants in British Columbia, Alberta, Saskatchewan, Manitoba, New Brunswick, Quebec and Newfoundland also included certain mineral rights. Otherwise, mining rights must be separately obtained by lease or grant from the provincial authority administering the mining laws and regulations. Mining activities may be classified as placer, general minerals (or veined minerals and bedded minerals), fuels (coal, petroleum and gas) and quarrying. Provincial mining regulations under these divisions are summarized in the following paragraphs.

Placer.—In most provinces in which placer deposits occur there are regulations defining the size of placer holdings, the terms under which they may be acquired and held, and the royalties to be paid.

General Minerals.—These minerals are sometimes described as quartz, lode, or minerals in place. With the exception of British Columbia, the most elaborate laws and regulations apply in this division. In all provinces except Alberta and Saskatchewan, a prospector's or miner's licence, valid for one year, must be obtained to search for mineral deposits, the licence being general in some areas but limited in others; a claim of promising ground of a specified size may then be staked. In Saskatchewan and Manitoba, a licence is required only for staking and in Saskatchewan any number of dispositions may be staked under one licence. A claim must be recorded within a time limit and payment of recording fees made, except in Quebec where no fees are required. Work to a specified value per annum must be performed upon the claim for a period of up to ten years except in Quebec where a development may be renewed on a yearly basis; also in Saskatchewan there is no work commitment in the first year of the claim. There is no time limit in British Columbia but \$500 assessment work, of which a survey may represent two fifths, must be performed and recorded before a lease may be obtained. In Quebec, a specified number of man-days of work must be performed and the excess may be carried forward for renewal of licence; before mining can be commenced, a mining concession must be purchased for which it is necessary to produce an engineer's report indicating the presence of an orebody. The taxation applied most frequently is a percentage of net profits of producing mines or royalties. In Saskatchewan, subsurface mineral regulations covering non-metallics stipulate the size and type of dispositions that may be made in order to maintain the disposition in good standing, provide for fees, rentals and royalties, and set out generally the rights and obligations of the disposition holder.

Fuels.—In provinces where coal occurs, the size of holdings is laid down together with the conditions of work and rental under which they may be held. In Quebec, exploration

* Compiled from material supplied by the provincial governments.

projects for fuel minerals may be carried out under exploration permit followed by a lease for areas larger than 1,280 acres. In Nova Scotia, mining rights to certain minerals, including petroleum, occurring under differing conditions may be held by different licensees. Provision is sometimes made for royalties. Acts or regulations govern methods of production. In the search for petroleum and natural gas, an exploration permit or reservation is usually required; however, in Manitoba, Saskatchewan, Alberta and British Columbia leases usually follow the exploration reservation whether or not any discovery of oil or gas is made. In Manitoba, Saskatchewan and Alberta, exploration costs are applicable in part on the first year's lease rental. In other provinces, the discovery of oil or gas is usually prerequisite to obtaining a lease or grant of a limited area, subject to carrying out drilling obligations and paying a rental, a fee, or a royalty on production.

Quarrying.—Regulations under this heading define the size of holdings and the terms of lease or grant. In Nova Scotia, sand deposits of a quality suitable for uses other than building purposes and limestone deposits of metallurgical grade belong to the Crown; gypsum quarries belong to the owner of the property. On Quebec private lands the quarry belongs to the owner; on Crown lands mineral rights belong to the Crown and may be obtained in accordance with the provisions of the law although the rights to exploit peat or marl must be obtained by special licence. In Saskatchewan, sand and gravel on the surface and all sand and gravel obtainable by stripping off the overburden or other surface operation belong to the owner of the surface of the land. In Alberta, sand, gravel, clay and marl recovered by excavating from the surface belong to the owner of the surface of the land.

Copies of mining legislation including regulations and other details may be obtained from the provincial authorities concerned.

Section 4.—Statistics of Mineral Production

Subsection 1.—Value and Volume of Mineral Production

Statistics of the annual value of mineral production are available from 1886, total production being shown for five-year intervals from that date to 1950 and annually for subsequent years in Table 4. These figures are not strictly comparable throughout the period because of minor changes in methods of computing metallic content of ores sold and valuations of products but they do serve to show broad trends in the mineral industry.

The mineral industry has tripled its value of output in the past 15 years. In 1949, the base year for many economic studies, the production per head of population was \$67.01; by 1964 this had advanced to \$176.61. Although part of the increase was accounted for by higher prices, the quantity index of output from Canadian mines recorded an advance from 100.0 to 326.5 in the same period (see p. 588).

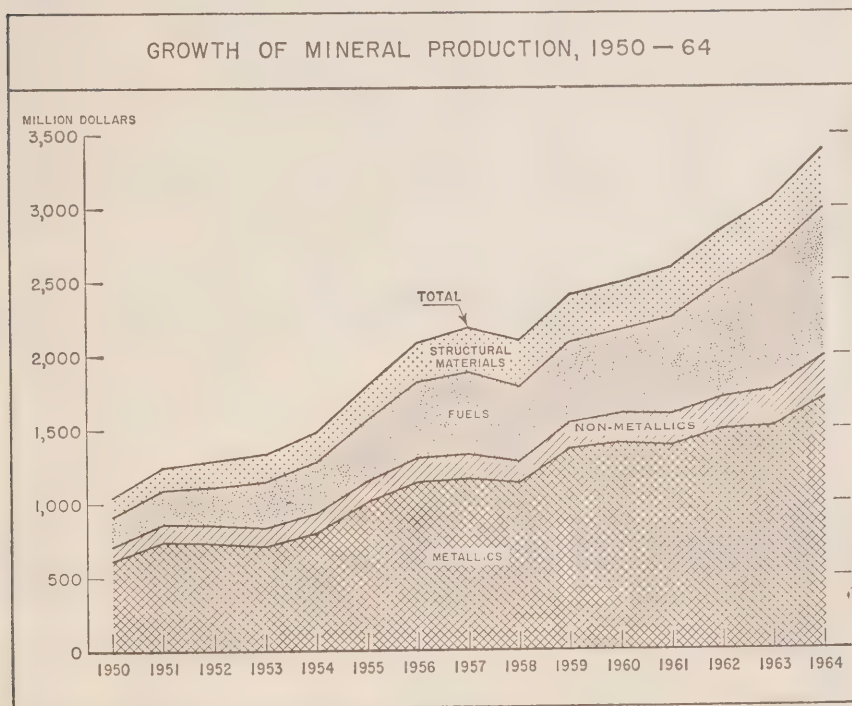
4.—Value of Mineral Production, 1886-1964

Year	Total Value	Value per Capita	Year	Total Value	Value per Capita	Year	Total Value	Value per Capita
	\$	\$		\$	\$		\$	\$
1886.....	10,221,255	2.23	1935.....	312,344,457	28.84	1957.....	2,190,322,392	131.87
1890.....	16,763,353	3.51	1940.....	529,825,035	46.55	1958.....	2,100,739,038	122.99
1895.....	20,505,917	4.08	1945.....	498,755,181	41.31	1959.....	2,409,020,511	137.79
1900.....	64,420,877	12.15	1950 ¹	1,045,450,073	76.24	1960.....	2,492,509,981	139.48
1905.....	69,078,999	11.51	1951.....	1,245,483,595	88.90	1961.....	2,582,300,387	141.59
1910.....	106,823,623	15.29	1952.....	1,285,342,353	88.90	1962.....	2,850,986,179	153.53
1915.....	137,109,171	17.18	1953.....	1,336,303,503	90.02	1963.....	3,050,428,547	161.43
1920.....	227,859,665	26.63	1954.....	1,488,352,091	97.35	1964 ¹	3,397,154,699	176.61
1925.....	226,583,333	24.38	1955.....	1,795,310,796	114.37			
1930.....	279,873,578	27.42	1956.....	2,084,905,554	129.65			

¹ Value of Newfoundland production included from 1949.

5.—Value of Mineral Production, by Class, 1955-64

Year	Metallics	Non-metallics	Fuels	Structural Materials	Total
	\$	\$	\$	\$	\$
1955.....	1,007,839,501	144,920,841	414,318,015	228,232,439	1,795,310,796
1956.....	1,146,349,595	180,341,599	518,761,191	259,453,169	2,084,905,554
1957.....	1,159,579,226	189,061,110	564,776,791	296,905,265	2,190,322,392
1958.....	1,130,160,395	150,354,802	510,768,681	309,455,160	2,100,739,038
1959.....	1,370,648,535	178,216,641	535,577,823	324,577,512	2,409,020,511
1960.....	1,406,558,061	197,505,783	565,851,829	322,594,308	2,492,509,981
1961.....	1,387,159,036	210,467,786	653,327,802	331,345,763	2,582,300,387
1962.....	1,496,433,950	217,453,009	780,932,387	356,166,833	2,850,986,179
1963.....	1,509,536,931	253,452,413	908,428,087	379,011,116	3,050,428,547
1964 ^a	1,704,622,877	286,900,692	1,005,190,049	400,441,081	3,397,154,699



Current Production.—The estimated value of mineral products shipped in Canada during 1964 reached a new high at over \$3,397,000,000, which was 11 p.c. above the 1963 value. Canada's mineral output exceeded \$500,000,000 in value for the first time in 1940, passed the \$1,000,000,000-mark in 1950, exceeded \$2,000,000,000 in 1956 and exceeded \$3,000,000,000 in 1963.

Metals, ores and concentrates produced in 1964 were valued at \$1,705,000,000, an amount 13 p.c. higher than in 1963. Iron ore contributed \$403,000,000, nickel \$382,000,000 and copper \$328,000,000, together making up over 65 p.c. of the total metal output.

The quantity of iron ore produced was over 8,500,000 tons higher in 1964 than in the previous year, the mines in Quebec and Newfoundland contributing most of the increase. Nickel shipments were up by almost 16,000 tons and copper by 41,000 tons. New mines in Quebec and New Brunswick helped to raise the output of zinc to 682,000 tons from 474,000 tons in 1963 and to place Canada first in world zinc ore production. Among the metallics, decreases in value of production were shown only by uranium, gold, selenium and tin.

In 1964, non-metallic minerals increased 13 p.c. in value to reach almost \$287,000,000. The greatest contributor was the asbestos industry which shipped \$148,000,000 worth of crudes and milled fibres compared with \$137,000,000 worth in 1963. Although Quebec produced the major portion of the asbestos, substantial amounts were also mined in Newfoundland, Ontario and British Columbia. The value of potash shipments from Saskatchewan increased from \$22,500,000 in 1963 to \$30,660,000 in 1964. Salt in the form of rock salt, brine and fine vacuum salt was produced at a slightly higher level than in 1963 and more than 6,000,000 tons of gypsum were shipped to plaster plants in Canada and the United States. Producers of elemental sulphur from sour gas found export markets for this by-product and thereby reduced the huge stockpiles that had accumulated.

Over \$1,000,000,000 worth of mineral or fossil fuels were shipped in 1964 compared with \$908,000,000 worth in 1963. All fuels contributed to this increase although the major part of it was shown by crude petroleum which accounted for close to 20 p.c. of the total value of the Canadian mineral production in 1964.

Structural materials continued upward at a 6-p.c. rate. The value at the quarry or pit of stone, sand and gravel increased to nearly \$208,000,000 from \$203,000,000 and most of the cement plants operated at capacity, producing a total of 7,745,000 tons valued at \$133,000,000.

6.—Quantity and Value of Mineral Production, 1963 and 1964

Mineral	1963		1964 ^P	
	Quantity	Value	Quantity	Value
		\$		\$
Metallics.....	...	1,509,536,931	...	1,704,622,877
Antimony..... lb.	1,601,253	624,489	1,718,634	866,200
Bismuth..... "	359,125	704,103	387,213	839,725
Cadmium..... "	2,475,485	5,941,164	2,800,761	8,950,213
Calcium..... "	98,673	117,247	158,875	174,762
Cobalt..... "	3,024,965	6,122,169	3,196,322	6,484,255
Columbium (Cb ₂ O ₆)..... "	1,393,444	1,300,009	2,250,000	2,305,000
Copper..... "	905,117,779	284,403,710	988,033,963	328,233,604
Gold..... oz.t.	4,003,127	151,118,045	3,810,738	143,855,362
Indium..... "	...	...	...	...
Iron ore..... ton	30,143,649	313,182,963	35,664,583	402,892,490
Iron, remelt..... "	...	9,246,713	...	15,954,893
Lead..... lb.	402,329,071	44,256,199	400,770,432	53,863,546
Magnesium..... "	17,810,348	5,357,816	18,041,900	5,592,989
Mercury..... "	...	5,548	...	22,192
Molybdenum..... "	833,867	1,344,004	1,278,404	1,789,234
Nickel..... "	434,059,725	360,392,658	465,749,775	381,996,719
Platinum group..... oz.t.	357,651	22,585,205	374,988	25,196,159
Selenium..... lb.	468,772	2,273,545	448,750	2,213,182
Silver..... oz.t.	29,932,003	41,425,891	31,111,943	43,556,719
Tellurium..... lb.	76,842	499,473	79,789	508,830
Thorium..... "	...	...	...	...
Tin..... "	927,062	648,943	856,074	623,128
Tungsten (WO ₃)..... "	...	...	...	...
Uranium (U ₃ O ₈)..... "	16,703,066	136,909,119	13,828,369	85,418,271
Zinc..... "	947,444,960	121,083,466	1,364,048,909	193,285,404
Non-metallics.....	...	253,452,413	...	286,900,692
Arsenious oxide..... lb.	187,450	7,498	300,000	12,000
Asbestos..... ton	1,275,530	136,956,180	1,377,079	148,370,312
Barite..... "	173,503	1,693,119	172,415	1,692,400
Diatomite..... "	798	26,830	584	20,360

6.—Quantity and Value of Mineral Production, 1963 and 1964—concluded

Mineral	1963		1964 ^p	
	Quantity	Value	Quantity	Value
		\$		\$
Non-metallics—concluded				
Feldspar.....	ton 8,608	197,031	8,615	205,420
Fluorspar.....	" 1,976,006	1,976,006	" 2,291,626	2,291,626
Gem stones.....	lb. 16,000	15,529	" 15,000	15,000
Graphite.....	ton —	—	13	6,570
Grindstone.....	" 10	2,000	10	2,000
Gypsum.....	5,955,266	11,237,952	6,373,765	12,397,828
Helium.....	Mcf. "	" "	" "	" "
Iron oxides.....	ton 978	74,505	914	79,015
Lithia.....	lb. 644,354	682,029	1,049,783	1,152,000
Magnesitic dolomite and brucite.....	ton —	3,439,890	—	3,467,029
Mica.....	lb. 1,183,041	44,284	1,202,800	95,583
Nepheline syenite.....	ton 254,000	2,699,202	292,042	3,397,106
Nitrogen.....	Mcf. "	" "	" "	" "
Peat moss.....	ton 243,311	8,680,228	245,117	7,177,608
Potash (K ₂ O).....	" 626,860	22,500,000	862,440	30,660,000
Pozzolan.....	" 17,994	—	" 20,000	20,000
Pyrite, pyrrhotite.....	" 476,438	1,643,629	356,349	1,128,019
Quartz.....	" 1,836,612	3,687,979	2,130,837	4,602,864
Salt.....	" 3,721,994	22,316,565	3,892,636	23,075,518
Soapstone and talc.....	" 54,250	757,878	57,150	819,154
Sodium sulphate.....	" 256,914	4,121,114	330,178	5,328,220
Sulphur, in smelter gas.....	" 353,243	3,488,181	434,776	4,493,182
Sulphur, elemental.....	" 1,249,887	13,380,182	1,611,181	15,409,943
Titanium dioxide, etc.....	" —	13,806,608	" —	20,981,935
		908,428,087		1,005,190,049
Fuels				
Coal.....	ton 10,575,694	71,756,581	11,072,776	72,109,342
Natural gas.....	Mcf. 1,117,425,217	150,468,714	1,363,814,214	183,505,880
Natural gas by-products.....	bbl. —	70,997,795	—	75,096,676
Petroleum, crude.....	" 257,661,777	615,204,997	274,250,125	674,478,151
		379,011,116		400,441,081
Structural Materials				
Clay products (brick, tile, etc.).....	—	38,154,294	—	40,534,768
Cement.....	ton 7,013,662	118,614,929	7,744,516	133,087,366
Lime.....	" 1,450,731	18,504,220	1,490,922	19,122,104
Sand and gravel.....	" 189,570,503	123,854,254	189,374,681	124,049,509
Stone.....	" 62,655,329	79,883,419	63,630,849	83,647,334
		3,050,428,547		3,397,154,699
Grand Totals.....	...	3,050,428,547	...	3,397,154,699

Analysis of Current Value and Volume.—To present a clearer and simpler interpretation of the trends in mineral production in Canada over the ten years 1955-64, the percentage of the total value contributed by each principal mineral in each year is given in Table 7.

7.—Percentage of the Total Value Contributed by Principal Minerals, 1955-64

Mineral	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964 ^p
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Metallics¹	56.1	55.0	52.9	53.8	56.9	56.5	53.7	52.5	49.5	50.2
Copper.....	13.4	14.1	9.4	8.3	9.7	10.6	9.9	9.9	9.3	9.7
Gold.....	8.7	7.2	6.8	7.4	6.2	6.3	6.1	5.5	5.0	4.2
Iron ore.....	6.2	7.7	7.6	6.0	8.0	7.0	7.3	9.2	10.3	11.9
Lead.....	3.2	2.8	2.3	2.0	1.6	1.8	1.8	1.5	1.5	1.6
Nickel.....	12.0	10.7	11.8	9.2	10.7	11.9	13.6	13.5	11.8	11.2
Platinum group.....	1.3	1.1	1.2	0.7	0.7	1.2	0.9	1.0	0.7	0.7
Silver.....	1.4	1.2	1.1	1.3	1.2	1.2	1.1	1.2	1.4	1.3
Uranium.....	1.4	2.2	6.2	13.3	13.7	10.8	7.6	5.5	4.5	2.5
Zinc.....	6.6	6.0	4.6	4.4	4.0	4.4	4.1	3.9	4.0	5.7

¹ Includes minor items not specified.

7.—Percentage of the Total Value Contributed by Principal Minerals, 1955-64—concluded

Mineral	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964 ^p
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Non-metallics¹	8.1	7.7	7.7	7.2	7.4	7.9	8.2	7.6	8.3	8.4
Asbestos.....	5.4	4.8	4.8	4.4	4.5	4.9	5.0	4.6	4.5	4.4
Gypsum.....	0.4	0.3	0.4	0.2	0.3	0.4	0.3	0.3	0.4	0.4
Potash.....	—	—	—	—	0.1	—	—	0.1	0.7	0.9
Quartz.....	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Salt.....	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.8	0.7	0.7
Sodium sulphate.....	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2
Sulphur in smelter gas.....	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Sulphur, elemental.....	—	—	—	0.1	0.1	0.2	0.3	0.3	0.4	0.5
Titanium dioxide, etc.....	0.3	0.4	0.4	0.3	0.4	0.5	0.6	0.4	0.5	0.6
Fuels	23.1	24.9	25.8	24.3	22.2	22.7¹	25.3¹	27.4¹	29.8¹	29.6¹
Coal.....	5.2	4.6	4.1	3.8	3.1	3.0	2.7	2.4	2.4	2.1
Natural gas.....	0.9	0.8	1.0	1.5	1.6	2.1	2.6	3.8	4.9	5.4
Petroleum.....	17.0	19.5	20.7	19.0	17.5	17.0	18.9	19.4	20.2	19.9
Structural Materials	12.7	12.4	13.6	14.7	13.5	12.9	12.8	12.5	12.4	11.8
Clay products.....	2.0	1.8	1.6	2.0	1.8	1.5	1.4	1.3	1.3	1.2
Cement.....	3.6	3.6	4.3	4.6	4.0	3.7	4.0	4.0	3.9	3.9
Lime.....	0.9	0.8	0.8	0.9	0.9	0.8	0.7	0.6	0.6	0.6
Sand and gravel.....	3.8	3.9	4.2	4.6	4.3	4.5	4.1	4.2	4.0	3.6
Stone.....	2.4	2.3	2.7	2.6	2.5	2.4	2.6	2.4	2.6	2.5
Grand Totals	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

¹ Includes minor items not specified.

In terms of 1949 production equalling 100,* mineral production in 1964 reached an all-time high of 326.5, a gain of 10.9 p.c. from the previous high recorded in 1963. Major contributors to the gain were crude petroleum, zinc and iron ore.† Gains of lesser importance were recorded by natural gas, asbestos, copper and nickel. Declines occurred in lead, gold and 'other' metals (including uranium).

* For a description of this index, as well as one for manufacturing and electric power and gas utilities, see DBS Reference Paper *Revised Index of Industrial Production, 1935-1957 (1949=100)* (Catalogue No. 61-502). To update these series and others in the Index of Industrial Production, see DBS monthly report *Index of Industrial Production (1949=100)* (Catalogue No. 61-005).

† See also footnote 2, Table 8.

8.—Quantity Indexes of Production of the Principal Mining Industries, 1955-64

(1949=100)

Mineral	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964 ^p
Metallics	142.7	151.0	170.0	180.3	201.3	197.9	191.7	197.7	193.8	210.7
Copper ¹	123.7	135.2	137.1	131.8	151.6	168.7	169.5	176.7	174.0	186.4
Gold ¹	110.2	107.9	106.7	109.7	108.4	111.2	107.1	100.1	95.5	91.0
Nickel ¹	135.9	139.0	146.8	110.2	144.8	166.9	183.8	184.2	171.0	181.2
Iron ore.....	316.5	418.6	462.6	321.5	448.9	406.3	504.7	632.5	670.8	834.2
Non-metallics	180.2	187.6	179.0	170.9	191.4	192.6	211.7	222.5	228.1	321.9²
Asbestos.....	191.9	188.4	184.3	178.3	193.5	201.4	223.4	234.1	239.1	259.9
Fuels	273.2	344.7	358.2	329.5	363.1	380.2	430.7	480.8	513.6	554.7
Coal.....	74.1	74.6	65.4	56.7	51.9	53.3	49.9	48.8	52.0	55.1
Natural gas.....	204.5	235.0	295.1	401.6	503.9	589.2	712.0	1,005.7	1,179.8	1,382.3
Petroleum.....	616.8	812.7	859.5	782.6	873.7	909.9	1,043.7	1,154.0	1,221.6	1,300.8
Total Mining	185.2	212.3	227.8	227.0	251.1	253.3	266.9	287.4	294.4	326.5

¹ Based on commodity data, years.² Includes potash for the first time and is not comparable with preceding

Subsection 2.—Provincial Distribution of Mineral Production

Developments in the mineral industries of the provinces during 1964 varied with the nature of the mineral deposits. In Newfoundland, the iron ore production, which included direct shipping ore, concentrates and pellets, increased 30 p.c. and new mines under development will increase shipments from this province by several million tons. More non-metallic minerals—barite, gypsum and salt—were shipped from the Nova Scotian mines. The metals produced by Quebec mines were worth \$100,000,000 more in 1964 than in the preceding year, contributed mainly by increases in zinc, iron ore and copper. Ontario produced larger quantities of nickel, copper and iron ore and supplied a greater demand for such structural materials as cement, stone, sand and gravel. Manitoba's copper-gold-silver mines increased their shipments of base metal concentrates. Oil and gas production continued upward in Saskatchewan and Alberta, with an additional boom building up in potash in Saskatchewan. Mineral output in British Columbia remained steady and there was only a slight increase in the Yukon Territory. High-grade lead and zinc ores were shipped over the new railway from Pine Point in the Northwest Territories.

9.—Value of Mineral Production, by Province, 1955-64

NOTE.—Figures from 1899 are given in the corresponding table of previous Year Books beginning with the 1933 edition.

Year	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba
	\$	\$	\$	\$	\$	\$	\$
1955.....	68,462,956	—	67,133,539	15,759,744	357,010,045	583,954,682	62,018,231
1956.....	84,349,006	—	66,092,274	18,258,302	422,464,410	650,823,362	67,909,407
1957.....	82,682,263	—	68,058,743	23,120,689	406,055,757	748,824,322	63,464,285
1958.....	64,994,754	—	62,706,891	16,275,971	365,706,489	789,601,868	57,217,569
1959.....	72,156,996	4,559,171	62,879,647	18,133,290	440,897,186	970,762,201	55,512,410
1960.....	86,637,123	1,172,587	65,453,531	17,072,739	446,202,726	983,104,412	58,702,697
1961.....	91,618,709	606,644	61,693,156	18,804,385	455,522,933	943,669,456	101,489,787
1962.....	101,858,960	677,906	61,651,093	21,811,575	519,453,166	913,342,174	158,932,169
1963.....	137,796,707	798,245	66,317,617	28,343,419	540,615,068	873,828,297	169,638,539
1964 ^p	191,922,042	843,115	66,952,434	49,856,301	671,881,571	911,098,372	175,041,740
	Saskatchewan	Alberta	British Columbia	Yukon Territory	Northwest Territories	Canada	
	\$	\$	\$	\$	\$	\$	
1955.....	85,150,128	325,974,326	189,524,574	14,724,750	25,597,821	1,795,310,796	
1956.....	122,744,698	411,171,898	203,277,828	15,656,434	22,157,935	2,084,905,554	
1957.....	173,461,037	410,211,763	178,931,120	14,111,798	21,400,615	2,190,322,392	
1958.....	209,940,966	345,939,248	151,149,136	12,310,756	24,895,390	2,100,739,038	
1959.....	210,042,051	376,215,593	159,395,092	12,592,378	25,874,496	2,409,020,511	
1960.....	212,093,225	395,344,010	186,261,646	13,330,198	27,125,087	2,492,509,981	
1961.....	215,977,233	473,480,540	188,542,078	12,750,304	18,145,162	2,582,300,387	
1962.....	240,653,502	566,502,703	235,428,135	13,137,730	17,537,066	2,850,986,179	
1963.....	272,355,007	669,311,368	261,146,081	14,366,936	15,911,163	3,050,428,547	
1964 ^p	279,995,723	747,348,396	269,293,797	15,210,744	17,710,464	3,397,154,699	

[illegible]

¹For footnotes, see end of table, p. 592.

10.—Detailed Mineral Production, by Province, 1963 with Preliminary Totals for 1964—continued

Mineral	Newfoundland	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Yukon Territory	North-west Territories	Canada	
												1963	1964 ^a
Non-metallics													
Soapstone, ton	31,783	—	—	15,564	6,903	—	—	—	—	—	—	54,250	57,150
pyrophyllite, ton	476,745	—	—	173,147	107,986	—	—	—	—	—	—	757,578	819,194
Sodium sulphate, ton	—	—	—	—	—	—	256,914	—	—	—	—	256,914	320,178
Sulphur, in ton	—	—	—	—	—	—	4,121,114	—	—	—	—	4,121,114	5,328,220
smelter, ton	—	—	—	—	—	—	—	—	—	—	—	4,353,243	434,776
gas, ton	—	—	16,398	196,690	1,405,694	—	—	—	1,868,399	—	—	3,488,181	4,493,162
Sulphur, ton	—	—	—	—	—	—	—	—	—	—	—	1,249,887	1,611,181
elemental, ton	—	—	—	—	53,744	14,777	—	11,516,478	1,794,594	—	—	13,380,182	15,409,943
Titanium dioxide, ton	—	—	—	13,806,603	—	—	—	—	—	—	—	13,806,608	20,981,935
etc.	—	—	—	—	—	—	—	—	—	—	—	—	—
Fuels													
Coal, ton	—	44,693,653	7,852,923	—	9,500,050	9,188,635	168,151,137	622,817,399	45,908,031	123,675	655,084	908,428,087	1,005,190,449
Natural gas, ton	—	4,834,813	889,330	—	—	—	1,873,556	2,289,943	6,162,684	8,231	—	10,575,694	11,072,776
Natural gas, products, ton	—	44,693,653	7,852,923	—	—	—	3,713,988	9,364,890	6,128,805	123,675	—	71,756,561	72,109,342
Natural gas, crude, ton	—	—	103,520	—	15,920,055	—	39,036,193	354,973	118,058,994	—	51,478	1,117,425,217	1,363,814,214
Natural gas, products, ton	—	—	103,520	—	6,049,621	—	2,364,233	129,428,302	12,495,718	—	21,330	150,468,714	183,505,880
Natural gas, products, ton	—	—	—	—	—	—	1,875,948	66,679,857	2,441,990	—	—	70,997,795	75,096,676
Petroleum, ton	—	—	7,381	—	1,205,376	3,771,163	71,303,893	168,214,054	12,528,681	—	631,229	257,661,777	274,250,125
Petroleum, crude, ton	—	—	10,333	—	3,489,429	9,188,635	190,226,978	416,844,350	24,841,518	—	633,754	615,204,997	674,478,151
Structural Materials													
Clay	7,044,558	6,623,504	10,511,700	107,970,750	154,217,540	22,778,459	10,696,903	33,448,008	24,921,049	—	—	379,011,116 ^c	400,441,081
products, ton	92,120	1,337,430	623,166	6,852,660	21,819,687	594,072	1,044,721	3,452,835	2,337,603	—	—	38,154,294	40,534,768
Cement, ton	92,400	—	161,833	2,330,641	2,552,065	455,325	217,545	727,132	476,071	—	—	7,013,662	7,744,516
Lime, ton	1,848,347	—	2,658,949	36,938,775	39,551,719	9,684,760	5,072,084	13,713,527	8,546,768	—	—	118,614,929	133,087,366
Sand and gravel, ton	—	—	16,919	358,201	962,945	54,879	—	54,826	12,961	—	—	1,490,731	1,490,922
Stone, ton	—	—	382,713	4,586,493	11,434,223	908,952	—	670,673	221,166	—	—	18,504,220	19,122,104
gravel, ton	4,640,993	6,033,581	4,417,611	42,375,911	80,259,750	9,663,471	7,388,017	16,139,744	17,451,950	—	—	189,570,503 ^c	189,374,681
Stone, ton	4,276,626	4,086,794	2,720,159	20,185,642	56,338,204	6,947,039	3,980,098	14,894,547	9,850,800	—	—	123,854,253 ^c	123,049,509
Stone, ton	382,260	457,525	4,416,799	30,003,825	20,402,614	3,693,144	—	138,894	2,935,268	—	—	62,655,329 ^c	63,630,849
Stone, ton	827,465	1,199,580	4,126,713	39,406,180	25,073,707	4,643,636	—	416,426	3,964,712	—	—	79,883,419 ^c	83,647,534
Grand Totals													
1963	137,796,707	66,317,617	28,343,419	540,615,068	873,828,297	169,638,539	272,355,007	669,311,368	261,146,081	14,366,936	15,911,163	3,050,428,547 ^c	...
1964 ^a	191,922,042	66,959,434	49,856,301	671,981,571	911,095,372	175,041,740	279,995,723	747,348,396	269,293,797	15,210,744	17,710,464	...	3,397,154,699

¹ Includes mercury valued at \$22,192.² Includes graphite valued at \$5,570.³ Includes 629,475 tons of sand and gravel valued at \$573,345 produced in Prince Edward Island.⁴ See footnotes ² and ³.

Subsection 3.—Production of Metallic Minerals

The metallic minerals of greatest dollar value to Canada during 1964 were, in order: iron ore, nickel, copper, zinc, gold, uranium, lead and silver. Iron ore replaced nickel in first position and zinc advanced to fourth place from sixth. Developments taking place in metal mining during 1964 are described in detail in Section 1, pp. 550-560. The following statistical information gives a comparison of quantity and value figures for each of the principal metals over the ten-year period 1955-64.

Iron Ore.—Shipments of iron ore from Canadian mines, which have fluctuated considerably over the past ten years, reached a record high level in 1964. The quantity shipped by each producing province was higher than in 1963, the largest increases being contributed by Quebec and Newfoundland. Quebec accounted for 39.9 p.c. of the country's output, Newfoundland for 33.9 p.c., Ontario for 20.7 and British Columbia for the remainder.

Production of pig iron and production of steel ingots and castings were also at their highest levels in 1964. Exports of iron ore—direct shipping grade, concentrated, agglomerated and other forms—amounted to 34,130,545 tons valued at \$356,007,314, a considerable increase over the 1963 totals. Of the 1964 tonnage exported, 81 p.c. went to the United States and most of the remainder to Europe, mainly to Britain. Japan received 1,878,612 tons compared with 2,216,227 tons in 1963.

11.—Iron Ore Shipments and Production of Pig Iron and Steel Ingots and Castings, 1955-64

Year	Iron Ore Shipments						Production of Pig Iron	Production of Steel Ingots and Castings
	New-found-land	Quebec	Ontario	British Columbia	Canada			
					Quantity	Value		
	tons	tons	tons	tons	tons	\$	tons	tons
1955.....	7,206,883	4,103,173	4,362,191	610,930	16,283,177	110,435,850	3,215,367	4,534,672
1956.....	8,463,572	7,956,549	5,558,203	369,954	22,348,278	160,362,118	3,568,203	5,301,202
1957.....	8,174,779	8,872,948	4,867,105	357,342	22,272,174	167,221,425	3,718,350	5,068,149
1958.....	5,390,775	6,060,325	3,644,952	630,271	15,726,323	126,131,181	3,059,579	4,359,466
1959.....	6,105,819	11,515,169	6,018,089	849,248	24,488,325	192,666,101	4,182,775	5,901,487
1960.....	7,611,365	7,457,971	5,325,197	1,156,297	21,550,830	175,082,523	4,298,849	5,809,108
1961.....	7,611,340	5,639,931	5,772,664	1,335,068	20,359,003	187,950,047	4,946,021	6,488,307
1962.....	7,986,910	11,163,982	6,414,936	1,793,848	27,359,676	263,004,217	5,276,753	7,173,534
1963.....	9,683,004	11,650,787	6,749,617	2,060,241	30,143,649	313,182,963	5,914,997	8,190,279
1964 ^a	13,094,240	15,417,069	7,985,715	2,167,559	38,664,583	402,892,490	6,540,679	9,130,763

Nickel.—The output of nickel in Canada was slightly higher in 1964 than in 1963 because the older mines in Ontario, which are by far the largest producers, again stepped up output after the cutback of the preceding years. The other producing provinces—Quebec, Manitoba and British Columbia—recorded moderately lower quantities than in 1963.

Canada uses only about 6,000 tons of refined nickel (anodes, cathodes and ingots) annually. Exports amounted to 128,330 tons in 1964 compared with 109,156 tons in 1963, most of it going to the United States and Britain; exports of nickel in ores, concentrates and matte, mostly to Britain and Norway, amounted to 74,766 tons compared with 83,392 tons in the previous year.

12.—Producers' Shipments of Nickel, by Province, and Total Value 1955-64

Year	Quebec	Ontario	Manitoba	British Columbia	Northwest Territories	Canada	
						Quantity	Value
	tons	tons	tons	tons	tons	tons	\$
1955.....	—	161,161	13,767	—	—	174,928	215,866,007
1956.....	—	167,576	10,939	—	—	178,515	222,204,860
1957.....	—	177,396	10,034	—	528	187,958	258,977,309
1958.....	—	127,144	9,778	704	1,933	139,559	194,142,019
1959.....	—	173,964	10,139	531	1,921	186,555	257,008,801
1960.....	—	201,650	9,059	1,890	1,907	214,506	295,640,279
1961.....	—	196,218	32,978	2,090	1,705	232,991	351,261,720
1962.....	1,540	166,582	61,482	1,738	900	232,242	383,784,622
1963.....	2,506	149,089	63,585	1,850	—	217,030	360,392,658
1964 ^p	2,330	165,254	63,536	1,755	—	232,875	381,996,719

Copper.—Production of copper in Canada reached its highest point in 1964 in both quantity and value, having risen in all producing provinces except Saskatchewan and British Columbia. Output in Ontario increased by 22,071 tons and in Quebec by 18,888 tons; these two provinces together produced over 73 p.c. of the Canadian total.

13.—Producers' Shipments of Copper, by Province, and Total Value 1955-64

NOTE.—Figures from 1886 are given in the corresponding table of previous Year Books beginning with the 1916-17 edition.

Year	Newfoundland	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba
	tons	tons	tons	tons	tons	tons
1955.....	3,052	1,028	35	101,021	146,407	19,379
1956.....	3,108	404	6	122,300	156,271	17,973
1957.....	4,536	—	5,738	112,409	171,703	18,551
1958.....	14,751	—	328	131,445	142,035	12,601
1959.....	14,989	—	—	134,912	188,272	12,945
1960.....	13,863	—	—	157,470	206,272	12,793
1961.....	15,752	—	—	149,007	211,647	12,454
1962.....	17,308	204	3,674	147,431	188,995	12,738
1963.....	14,012	237	8,964	141,400	173,960	16,980
1964 ^p	14,506	284	10,523	160,288	201,031	29,191

	Saskatchewan	British Columbia	Yukon Territory	Northwest Territories	Canada	
					Quantity	Value
	tons	tons	tons	tons	tons	\$
1955.....	32,945	22,127	—	—	325,994	239,756,455
1956.....	33,116	21,682	—	—	354,860	292,958,091
1957.....	30,597	15,410	—	165	359,109	206,897,988
1958.....	37,510	6,010	—	434	345,114	174,430,930
1959.....	35,536	8,121	—	494	395,269	233,102,813
1960.....	31,785	16,559	—	520	439,262	264,846,637
1961.....	33,479	15,845	440	463	429,087	255,167,626
1962.....	32,017	54,489	215	314	457,385	282,732,696
1963.....	29,772	62,218	—	16	452,559	284,403,710
1964 ^p	20,688	57,506	—	—	494,017	328,233,604

Zinc.—New mines in Eastern Canada, particularly in Quebec and New Brunswick, were mainly responsible for the large increase in shipments of zinc in 1964, an increase that made Canada the world's leading producer of this metal. Quebec is now Canada's largest producer, accounting for 33.5 p.c. of the total 1964 output compared with British Columbia's 30.4 p.c.

14.—Producers' Shipments of Zinc, by Province, and Total Value, 1955-64

Year	New-foundland	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba
	tons	tons	tons	tons	tons	tons
1955.....	28,636	8,018	—	101,431	1,548	17,966
1956.....	34,680	2,088	531	85,973	1,227	17,904
1957.....	35,698	—	3,314	74,295	11,296	13,729
1958.....	33,870	—	3,162	56,923	46,239	11,512
1959.....	31,674	—	—	47,058	44,982	15,702
1960.....	34,208	—	—	49,807	45,230	24,390
1961.....	34,638	—	—	54,005	51,937	46,509
1962.....	32,541	757	2,498	70,737	63,132	49,920
1963.....	34,485	—	10,614	75,084	66,470	46,392
1964 ^a	41,498	644	53,785	228,580	68,420	42,671
	Saskatchewan	British Columbia	Yukon Territory	Northwest Territories	Canada	
					Quantity	Value
	tons	tons	tons	tons	tons	\$
1955.....	48,960	215,886	10,912	—	433,357	118,306,466
1956.....	45,380	224,323	10,526	—	422,632	125,437,344
1957.....	45,070	221,779	8,560	—	413,741	100,042,533
1958.....	48,328	217,304	7,761	—	425,099	92,501,496
1959.....	46,877	203,092	6,623	—	396,008	96,942,663
1960.....	42,703	203,833	6,702	—	406,873	108,635,003
1961.....	28,360	194,486	6,069	—	416,004	104,749,879
1962.....	30,899	206,716	5,944	—	463,144	112,080,981
1963.....	33,320	201,432	5,925	—	473,722	121,083,466
1964 ^a	28,429	207,656	7,146	3,195	682,024	193,285,404

Gold.—Over the ten-year period 1955-64, Canada's annual gold production fluctuated narrowly around the 4,000,000-oz.t.-mark and its value around \$150,000,000. The high value reached in 1961 was followed by three successive annual declines, the quantity produced in 1964 being almost 15 p.c. lower than the 1961 total. Most of this decrease took place in the major producing provinces of Ontario and Quebec, although output in all producing areas was lower except the Atlantic Provinces and the Northwest Territories; the latter, which is the third highest producer, recorded a 2-p.c. increase in this comparison. In 1964, Ontario produced 56.0 p.c. of the Canadian output, Quebec 24.8 p.c., the Northwest Territories 10.9 p.c. and British Columbia 3.5 p.c.

15.—Producers' Shipments of Gold, by Province, and Total Value, 1955-64

NOTE.—Figures from 1862 are given in the corresponding table of previous Year Books beginning with the 1916-17 edition.

Year	Newfoundland	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan
	oz.t.	oz.t.	oz.t.	oz.t.	oz.t.	oz.t.	oz.t.
1955.....	6,337	3,880	—	1,154,522	2,523,040	123,888	83,580
1956.....	8,213	1,279	—	1,036,059	2,513,912	120,232	82,687
1957.....	9,755	45	240	1,006,895	2,578,206	120,008	75,236
1958.....	13,381	131	52	1,044,846	2,716,514	87,356	86,590
1959.....	13,411	—	—	999,388	2,683,449	51,186	78,588
1960.....	13,515	3	—	1,035,914	2,732,673	52,762	84,775
1961.....	14,429	—	—	1,054,029	2,637,720	57,747	70,784
1962.....	13,966	—	553	993,560	2,421,249	68,259	66,034
1963.....	12,318	—	1,128	917,229	2,338,854	52,084	64,813
1964 ^p	18,679	63	1,440	944,941	2,135,269	55,919	47,692

	Alberta	British Columbia	Yukon Territory	Northwest Territories	Canada	
					Quantity	Value
	oz.t.	oz.t.	oz.t.	oz.t.	oz.t.	\$
1955.....	214	252,979	72,201	321,321	4,541,962	156,788,528
1956.....	119	196,692	72,001	352,669	4,383,863	151,024,080
1957.....	416	229,113	73,962	340,018	4,433,894	148,757,143
1958.....	282	210,612	67,745	343,838	4,571,347	155,334,370
1959.....	200	184,312	66,960	405,922	4,483,416	150,508,275
1960.....	191	212,859	78,115	418,104	4,628,911	157,151,527
1961.....	171	164,467	66,878	407,474	4,472,699	158,637,366
1962.....	186	159,492	54,805	400,292	4,178,396	156,313,794
1963.....	132	159,473	55,211	400,885	4,003,127	151,118,045
1964 ^p	55	132,642	57,075	416,963	3,810,738	143,855,362

Uranium.—Uranium mineralization has been found in Canada at intervals along the western and southern edges of the Canadian Shield but production has been concentrated in four areas within this belt—Great Bear Lake in the Northwest Territories, Beaverlodge in northern Saskatchewan, and Elliot Lake and Bancroft in Ontario. Although output of uranium first began in the Northwest Territories in 1942, figures were not available until 1954 because of government restrictions. However, it was after that time that the large mines and mills of Saskatchewan and Ontario came into production. Peak output amounting to 31,800,000 lb. was reached in 1959 from 23 mines, but by the end of 1964, for economic reasons (see p. 557), only five mines remained in operation and production dropped to about 13,800,000 lb. for the year. Of the 1964 quantity, 87 p.c. was produced in Ontario and the remainder in Saskatchewan.

16.—Quantity and Value of Producers' Shipments of Uranium (U_3O_8), by Province, 1955-64

Year	Ontario		Saskatchewan		Northwest Territories		Canada	
	Quantity ¹	Value	Quantity ¹	Value	Quantity ¹	Value	Quantity ¹	Value
	lb.	\$	lb.	\$	lb.	\$	lb.	\$
1955.....	—	487,054	—	23,312,471	—	13,232,079	—	26,031,604
1956.....	906,614	9,361,867	2,780,534	27,194,202	873,912	9,176,076	4,561,060	45,732,145
1957.....	7,970,598	82,940,763	4,462,552	44,561,832	838,264	8,801,769	13,271,414	136,304,364
1958.....	19,970,136	210,149,700	5,924,253	59,815,924	910,843	9,572,847	26,805,232	279,538,471
1959.....	25,492,171	268,529,993	5,372,685	54,457,321	919,333	8,155,729	31,784,189	331,143,043
1960.....	19,793,727	211,983,533	4,624,431	48,722,961	1,077,211	9,231,698	25,495,369	269,938,192
1961.....	14,970,594	151,060,610	4,310,871	44,631,014	—	—	19,281,465	195,691,624
1962.....	12,805,203	118,283,081	4,053,966	39,900,588	—	—	16,859,169	158,183,669
1963.....	12,770,421	102,951,146	3,932,645	33,957,973	—	—	16,703,066	136,909,119
1964.....	12,035,382	74,361,393	1,792,987	11,056,878	—	—	13,828,369	85,418,271

¹ Figures for 1956 include radium salts, silver, cobalt and uranium oxides; figures for 1957-64 are for uranium oxide (U_3O_8).

Lead.—Production of lead in 1964 continued the downward trend of the preceding two years, although an increase in prices brought the value to its highest point since 1956. As stated on p. 554, new production in New Brunswick and the Northwest Territories was offset by a decline in British Columbia, the latter accounting for 66 p.c. of the output compared with 77 p.c. in 1963.

17.—Producers' Shipments of Lead from Canadian Ores, by Province, and Total Value, 1955-64

Year	Newfoundland	Nova Scotia	New Brunswick	Quebec	Ontario
	tons	tons	tons	tons	tons
1955.....	17,855	1,990	766	5,608	1,927
1956.....	22,788	711	474	2,873	1,505
1957.....	24,512	—	1,170	2,709	506
1958.....	23,980	—	94	3,150	1,256
1959.....	22,457	—	—	2,910	1,611
1960.....	24,022	—	—	2,669	831
1961.....	21,968	—	—	3,392	835
1962.....	25,330	2,682	1,879	4,716	1,144
1963.....	23,392	1,400	1,783	4,337	1,539
1964 ^a	24,368	1,576	22,377	3,279	1,988

	Manitoba	British Columbia	Yukon Territory	Canada	
	tons	tons	tons	Quantity	Value
				tons	\$
1955.....	—	161,492	13,124	202,762	58,314,500
1956.....	—	147,701	12,802	188,854	58,582,651
1957.....	—	140,084	12,493	181,484	50,670,407
1958.....	—	147,417	10,783	186,680	42,413,805
1959.....	—	148,922	10,796	186,696	39,616,835
1960.....	1,037	166,947	10,144	205,650	43,926,888
1961.....	3,054	192,800	8,385	230,435	47,054,765
1962.....	3,792	167,641	8,145	215,329	42,721,341
1963.....	2,737	157,487	8,490	201,165	44,256,199
1964 ^a	1,329	134,160	9,463	200,385 ¹	53,863,546

¹ Includes 1,845 tons of producers' shipments in the Northwest Territories.

Silver.—Production of silver is fairly widespread across Canada, being recovered mainly as a by-product in the treatment of gold ores and ores of copper, lead, zinc, cobalt and nickel. Output is therefore often affected by changes in the production of these metals. The total amount produced in 1964 was somewhat higher than that for 1963 and the sustained high price of silver brought the value of that production to an all-time high.

18.—Producers' Shipments of Silver, by Province, and Total Value, 1955-64

NOTE.—Figures from 1887 are given in the corresponding table of previous Year Books beginning with the 1916-17 edition.

Year	Average Price per oz.t. (Canadian funds)	Newfoundland	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba
	cts.	oz.t.	oz.t.	oz.t.	oz.t.	oz.t.	oz.t.
1955.....	88.18	701,792	262,067	25,087	4,786,695	6,051,017	454,528
1956.....	89.67	957,125	92,859	18,182	4,063,966	6,626,447	430,124
1957.....	87.37	1,196,414	1	379,173	3,645,856	6,910,130	407,834
1958.....	86.81	1,267,078	4	51,139	3,908,361	9,815,257	320,759
1959.....	87.78	1,125,110	—	—	4,108,241	10,540,856	373,827
1960.....	88.91	1,271,126	—	—	4,115,105	11,220,823	501,637
1961.....	94.26	1,145,105	—	—	4,315,844	8,870,402	767,543
1962.....	116.50	1,181,648	724,245	178,521	4,603,019	9,383,445	847,879
1963.....	138.40	981,005	423,189	332,472	4,441,644	9,601,621	766,976
1964.....	140.00	1,338,901	539,801	1,478,231	4,757,251	10,719,539	706,296

18.—Producers' Shipments of Silver, by Province, and Total Value, 1955-64—concluded

Year	Saskatchewan	British Columbia	Yukon Territory	Northwest Territories	Canada	
					Quantity	Value
	oz.t.	oz.t.	oz.t.	oz.t.	oz.t.	\$
1955.....	1,230,179	8,702,122	5,712,219	58,477	27,984,204	24,676,472
1956.....	1,179,110	8,801,398	6,192,706	69,916	28,431,847	25,497,681
1957.....	1,145,571	8,584,991	6,484,185	69,104	28,823,298	25,182,915
1958.....	1,299,077	8,013,428	6,415,560	72,779	31,163,470	27,053,007
1959.....	1,187,439	7,463,285	7,054,632	70,560	31,923,969	28,022,860
1960.....	1,163,845	8,447,440	7,217,361	79,473	34,016,829	30,244,363
1961.....	876,450	8,391,640	6,937,086	77,890	31,381,977	29,580,651
1962.....	762,215	6,186,937	6,482,244	72,802	30,422,972	35,442,761
1963.....	746,683	6,451,158	6,106,037	81,206	29,932,003	41,425,891
1964.....	611,475	5,309,486	5,584,497	66,462	31,111,943	43,556,719

¹ Includes relatively small quantities produced in Alberta.

Subsection 4.—Production of Non-metallic Minerals (excluding Fuels)

Asbestos is by far the most important item in this group in point of value, followed by potash, salt, sulphur and gypsum. Four of these items are discussed separately below; potash, a recently developed product produced only in Saskatchewan is covered on p. 561. Next in importance is peat moss which, although included as a non-metallic mineral, consists of the dead fibrous moss produced from peat bogs; its growing use as a soil conditioner, as poultry and stable litter and as packaging material resulted in shipments valued at over \$7,000,000 in 1964. Quantities and values of other non-metallic minerals produced are shown in Table 6, pp. 586-587, and a review of recent developments in the industrial mineral field is given at pp. 560-563.

Asbestos.—In 1964, Canadian asbestos mines shipped a record 1,377,000 tons valued at \$148,370,000, representing an increase of 8 p.c. in quantity and 11 p.c. in value over 1963. Quebec, with ten producing firms, accounted for over 90 p.c. of the total tonnage; British Columbia, Newfoundland and Ontario, each with one mine, contributed 66,000 tons, 50,000 tons and 15,500 tons, respectively.

19.—Quantity and Value of Producers' Shipments of Asbestos, 1955-64

NOTE.—Figures from 1896 are given in the corresponding table of previous Year Books beginning with the 1911 edition.

Year	Quantity	Value	Year	Quantity	Value
	tons	\$		tons	\$
1955.....	1,063,802	96,191,317	1960.....	1,118,456	121,400,015
1956.....	1,014,249	99,859,969	1961.....	1,173,695	128,955,900
1957.....	1,046,086	104,489,431	1962.....	1,215,814	130,281,966
1958.....	925,331	92,276,748	1963.....	1,275,530	136,956,180
1959.....	1,050,429	107,433,344	1964.....	1,377,079	148,370,312

Salt.—The output of salt continued its upward trend and reached a high point in both quantity and value in 1964 with Ontario and Nova Scotia contributing most of the increase over 1963. Ontario produced over 84 p.c. of the total tonnage. Rock salt is mined in Nova Scotia and Ontario; brine wells are operated in Nova Scotia, Ontario, Manitoba, Saskatchewan and Alberta. Salt is also a by-product of the potash operations in Saskatchewan.

20.—Producers' Shipments of Salt, by Province, and Total Value, 1955-64

NOTE.—Figures from 1926 are given in the corresponding table of previous Year Books beginning with the 1946 edition.

Year	Nova Scotia	Ontario	Manitoba	Saskatchewan	Alberta	Canada	
						Quantity	Value
	tons	tons	tons	tons	tons	tons	\$
1955.....	144,862	998,789	18,954	40,748	41,408	1,244,761	10,122,299
1956.....	132,539	1,347,729	21,068	42,814	46,654	1,590,804	12,144,476
1957.....	122,763	1,538,805	19,372	43,684	46,935	1,771,559	13,989,703
1958.....	125,872	2,126,483	20,560	46,511	55,766	2,375,192	14,989,542
1959.....	120,225	3,036,230	23,547	48,776	61,198	3,289,976	18,034,522
1960.....	163,901	3,007,599	21,925	49,064	72,431	3,314,920	19,355,658
1961.....	225,875	2,861,705	23,103	51,964	83,880	3,246,527	19,552,006
1962.....	312,519	3,155,589	25,010	54,931	90,729	3,638,778	21,927,135
1963.....	356,902	3,187,491	24,883	56,301	96,417	3,721,994	22,316,565
1964.....	430,633	3,265,909	24,600	70,094	101,400	3,892,636	23,075,518

Sulphur.—The figures in Table 21 represent the quantity and value of sulphur contained in derivatives from smelter gases such as sulphur dioxide, sulphuric acid, etc., and in pyrite and pyrrhotite shipments, as well as the quantity and value of sulphur refined from natural gas production. The increase in the latter over the past six years has been quite remarkable. In Canada, sulphur is used in the treatment of sulphite pulps and in the manufacture of rayon, explosives, rubber goods, petroleum refining, matches and insecticides.

21.—Quantity and Value of Sulphur Produced from Smelter Gases and in Pyrite and Pyrrhotite Shipments, and of Elemental Sulphur Sales, 1955-64

Year	Sulphur in Smelter Gases		Producers' Shipments Pyrite and Pyrrhotite			Sales of Elemental Sulphur ¹	
	Quantity	Value	Gross Weight	Sulphur Content	Value	Quantity	Value
	tons	\$	tons	tons	\$	tons	\$
1955.....	224,457 ²	2,244,570	878,452	403,986 ³	3,740,383	25,976	..
1956.....	236,088 ³	2,323,590	1,046,740	473,605	4,538,785	34,784	..
1957.....	235,123 ³	2,322,067	1,166,416	515,096	4,808,228	93,338	..
1958.....	241,055 ³	2,361,252	1,191,731	512,427	4,248,668	94,377	1,872,822
1959.....	277,030 ³	2,716,416	1,099,564	..	3,433,095	145,656	2,620,787
1960.....	289,620 ³	2,854,623	1,032,288	..	3,316,378	274,359	4,298,906
1961.....	277,056 ³	2,708,110	517,258 ⁴	..	1,820,566	394,762	7,287,881
1962.....	292,728 ³	3,089,537	517,308 ⁴	..	1,879,584	665,098	9,286,999
1963.....	353,243 ³	3,488,181	476,438 ⁴	..	1,643,629	1,249,887	13,380,182
1964.....	434,776 ³	4,493,182	356,349 ⁴	..	1,128,019	1,611,181	15,409,943

¹ Recovered from sour natural gas and nickel sulphide ores.
from roasting zinc sulphide concentrates at Arvida.
sulphide concentrates at Arvida and Port Maitland.
residue or sinter.

² Does not include sulphur in acid made

³ Includes sulphur in acid made from roasting zinc

⁴ Excludes pyrite and pyrrhotite used to produce iron

Gypsum.—Nova Scotia deposits provided 80 p.c. of the total output of gypsum in 1964 and, together with Newfoundland, accounted for the major part of the increased production in that year. The over-all increase in quantity was about 7 p.c. and in value about 10 p.c. In Canada, gypsum is used in the manufacture of plaster and wallboard and is added to portland cement to control setting, but most of the output is exported in crude form to United States plants for processing.

22.—Producers' Shipments of Gypsum, by Province, and Total Value, 1955-64

NOTE.—Figures from 1926 are given in the corresponding table of previous Year Books beginning with the 1943-44 edition.

Year	Newfoundland	Nova Scotia	New Brunswick	Ontario	Manitoba	British Columbia	Canada	
							Quantity	Value
	tons	tons	tons	tons	tons	tons	tons	\$
1955.....	46,459	3,838,847	90,096	366,416	176,005	150,078	4,667,901	8,037,153
1956.....	37,000	4,144,147	86,104	366,956	185,986	75,618	4,895,811	7,260,236
1957.....	29,465	3,842,027	93,249	379,621	183,708	49,422	4,577,492	7,745,105
1958.....	36,307	3,149,719	105,749	425,733	176,123	70,498	3,964,129	5,189,159
1959.....	37,720	5,036,411	98,250	412,100	200,139	94,010	5,878,630	8,393,703
1960.....	34,346	4,490,427	90,892	355,603	122,063	112,400	5,205,731	9,498,711
1961.....	40,699	4,113,183	85,330	425,287	122,233	153,300	4,940,037	7,750,748
1962.....	83,992	4,451,072	91,835	435,140	122,870	147,900	5,332,809	9,349,775
1963.....	232,259	4,910,536	80,544	439,206	131,767	160,954	5,955,266	11,237,952
1964.....	349,774	5,117,205	103,986	490,000	132,300	180,500	6,373,765	12,397,828

Subsection 5.—Production of Fuels

Coal.—The downward trend in the production of coal, in evidence for some time, was interrupted in 1960 and again in 1963 and 1964. In the latest year, New Brunswick, Alberta and British Columbia reported increases compared with the previous year but output in Nova Scotia and Saskatchewan, the major producing provinces, was lower.

23.—Coal Production, by Province, and Total Value, 1955-64

NOTE.—Figures from 1874 are given in the corresponding table of previous Year Books beginning with the 1911 edition.

Year	Nova Scotia	New Brunswick	Saskatchewan	Alberta	British Columbia	Yukon Territory	Canada	
							Quantity	Value
	tons	tons	tons	tons	tons	tons	tons	\$
1955.....	5,731,026	877,838	2,293,816	4,455,279	1,453,881	7,040	14,818,880	93,579,471
1956.....	5,775,025	988,266	2,341,641	4,328,787	1,472,519	9,372	14,915,610	95,349,763
1957.....	5,685,770	976,597	2,248,812	3,156,546	1,113,699	7,731	13,189,155	90,220,670
1958.....	5,269,879	790,719	2,253,176	2,519,901	849,091	4,314	11,687,110	79,963,327
1959.....	4,391,829	1,003,387	1,947,380	2,528,755	751,492	3,879	10,626,722	73,875,895
1960.....	4,570,240	1,028,064	2,170,797	2,391,699	843,868	6,470	11,011,138	74,676,240
1961.....	4,300,758	887,903	2,208,851	2,027,826	964,663	7,703	10,397,704	70,052,683
1962.....	4,204,779	815,529	2,256,306	2,087,310	913,196	7,649	10,284,769	69,160,213
1963.....	4,554,944	886,336	1,873,556	2,289,943	962,684	8,231	10,575,694	71,756,581
1964.....	4,343,606	997,187	1,807,760	2,875,635	1,041,796	6,792	11,072,776	72,109,342

24.—Imports of Anthracite, Bituminous and Lignite Coal and Briquettes, and Exports of Domestic Coal, 1955-64

NOTE.—Figures from 1868 are given in the corresponding table of previous Year Books beginning with the 1911 edition.

Year	Imports of Coal and Briquettes						Exports of Domestic Coal	
	Anthracite	Bituminous ¹	Lignite	Briquettes ²	Totals			
	tons	tons	tons	tons	tons	\$	tons	\$
1955.....	2,646,503 ³	17,094,480	1,548	124,216	19,866,747	108,087,269	592,782	4,870,598
1956.....	2,545,627 ³	20,065,807	1,940	126,724	22,740,098	130,313,369	594,166	4,710,030
1957.....	1,925,498 ³	17,548,585	2,166	73,806	19,549,555	118,581,708	396,311	2,357,959
1958.....	1,556,018 ³	12,934,262	1,035	41,820	14,533,135	88,552,326	338,544	2,907,513
1959.....	1,603,909	12,621,429	10,780 ⁴	24,521	14,260,639	84,808,838	473,768	3,582,313
1960.....	1,297,467	12,250,832	16,537 ⁴	15,528	13,580,364	77,174,112	852,921	6,789,163
1961.....	1,058,157	11,237,629	10,712 ⁴	9,664	12,316,162	71,717,030	939,360	8,541,679
1962.....	914,336	11,687,898	11,955 ⁴	7,608	12,621,797	74,307,252	901,560	8,590,693
1963.....	847,326	12,513,423	9,657 ⁴	6,445	13,376,851	78,837,274	1,056,788	9,916,398
1964.....	653,838 ³	14,333,991	1,285	7,140	14,996,254	86,472,326	1,283,612	11,936,285

¹ Includes coal ex-warehoused for ships' stores.

² Coal or coke.

³ Includes anthracite dust.

⁴ Includes coal dust, ground coal and coal *n.o.p.*

The amounts and percentages of domestic and imported coal apparently consumed in Canada in the years 1955-64 are shown in Table 25. The imports represent amounts taken out of bond for consumption during the respective years, regardless of when received. Thus, the totals are exclusive of coal landed at Canadian ports and re-exported or ex-warehoused for ships' stores without being taken out of bond.

25.—Consumption of Canadian and Imported Coal in Canada, 1955-64

NOTE.—Figures from 1886 are given in the corresponding table of previous Year Books beginning with the 1921 edition.

Year	Canadian Coal ¹		Imported Coal 'Entered for Consumption' ²				Grand Total	Consumption per Capita
			From United States	From Britain	Total ³			
	tons	p.c.	tons	tons	tons	p.c.	tons	tons
1955.....	14,060,039	42.1	19,053,434	269,898	19,322,134	57.9	33,382,173	2.14
1956.....	14,115,095	38.9	22,045,485	153,404	22,198,049	61.1	36,313,144	2.26
1957.....	12,478,626	39.6	18,910,544	134,671	19,041,030	60.4	31,519,656	1.90
1958.....	11,054,757	43.9	14,089,557	65,275	14,154,121	56.1	25,208,878	1.48
1959.....	10,589,263	43.1	13,861,676	96,814	13,958,996	56.9	24,548,259	1.41
1960.....	9,973,308	42.9	13,211,493	65,375	13,276,599	57.1	23,249,907	1.31
1961.....	9,572,805	44.3	12,253,272	53,226	12,057,086	55.7	21,629,891	1.19
1962.....	9,510,293	43.4	12,583,618	30,571	12,377,965	56.6	21,888,258	1.18
1963.....	9,504,903	42.0	13,348,913	21,101	13,105,686	58.0	22,610,589	1.20
1964.....	9,163,323	37.9	14,983,536	5,578	14,987,656	62.9	24,150,979	1.25

¹ The sum of Canadian coal mines' sales, colliery consumption, coal supplied to employees and coal used in making coke, etc., less the tonnage of coal exported. ² Imports of briquettes are not included in this table but are shown separately in Table 24. ³ Deductions have been made from this column to take account of foreign coal re-exported from Canada; bituminous coal ex-warehoused for ships' stores was deducted for the years prior to 1964.

Petroleum.—The upward climb of crude petroleum production which started with the discovery of the Leduc field in Alberta in 1947 halted temporarily in 1958 but resumed in 1959 and continued in subsequent years. Quantity production in 1964 reached a record level, about 16,000,000 bbl. higher than in 1963. Over 64 p.c. of the output was contributed by Alberta.

26.—Quantity and Value of Producers' Shipments of Crude Petroleum, by Province, 1955-64

NOTE.—Figures from 1936 are given in the corresponding table of previous Year Books beginning with the 1948-49 edition.

Year	New Brunswick		Ontario		Manitoba		Saskatchewan	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	bbl.	\$	bbl.	\$	bbl.	\$	bbl.	\$
1955.....	12,548	17,567	525,510	1,599,335	4,145,756	9,618,154	11,317,168	18,317,968
1956.....	16,628	23,279	593,370	1,958,121	5,786,540	13,633,088	21,077,371	36,253,078
1957.....	19,401	27,161	623,666	2,160,000	6,089,743	15,467,947	36,861,089	79,325,064
1958.....	15,189	21,265	778,341	2,623,000	5,829,226	14,415,676	44,626,148	96,704,863
1959.....	14,479	20,271	1,001,580	3,194,000	5,056,075	11,619,872	47,442,498	97,731,546
1960.....	14,148	19,807	1,005,030	3,150,065	4,764,045	10,690,384	51,908,428	103,957,009
1961.....	12,024	16,833	1,149,087	3,546,740	4,480,348	10,156,000	55,860,104	115,719,791
1962.....	10,333	14,466	1,134,534	3,661,174	3,926,683	9,435,819	64,432,411	141,783,520
1963.....	7,381	10,333	1,205,376	3,459,429	3,771,163	9,188,635	71,303,893	160,226,978
1964.....	4,961	6,945	1,260,000	3,595,145	4,370,000	10,620,000	81,040,229	184,403,588

26.—Quantity and Value of Producers' Shipments of Crude Petroleum, by Province, 1955-64 —concluded

Year	Alberta		British Columbia		Northwest Territories		Canada	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	bbl.	\$	bbl.	\$	bbl.	\$	bbl.	\$
1955.....	113,035,046	274,901,232	—	—	404,219	1,185,780	129,440,247	305,640,036
1956.....	143,909,641	353,629,158	148,454	302,375	449,409	762,773	171,981,413	406,561,872
1957.....	137,492,316	355,555,140	340,945	763,717	420,844	294,591	181,848,004	453,593,620
1958.....	113,277,847	283,262,592	512,359	1,022,150	457,086	698,266	165,496,196	398,747,818
1959.....	129,967,312	306,917,803	866,234	1,583,129	430,319	1,025,914	184,778,497	422,092,535
1960.....	130,506,968	302,841,423	867,057	1,626,590	468,545	641,219	189,534,221	422,926,497
1961.....	157,811,712	355,530,845	1,017,826	1,859,873	516,979	730,160	220,848,080	487,560,242
1962.....	165,124,967	379,830,363	8,914,220	16,872,122	572,004	755,045	244,115,152	552,352,509
1963.....	168,214,054	416,844,350	12,528,681	24,841,518	631,229	633,754	257,661,777	615,204,997
1964.....	175,230,500	451,640,600	11,726,180	23,749,356	618,255	462,517	274,250,125	674,478,151

Natural Gas.—The output of natural gas continues to increase at a rapid rate in Alberta and British Columbia. Total Canadian shipments, which amounted to 150,772,000 Mcf. in 1955, reached a high of 1,364,000,000 Mcf. in 1964; 1,184,000,000 Mcf. of that amount came from Alberta. A review of developments in the natural gas industry is given at pp. 564-565.

27.—Natural Gas Produced, by Province, and Total Value, 1955-64

NOTE.—Figures from 1920 are given in the corresponding table of previous Year Books beginning with the 1940 edition.

Year	New Brunswick	Ontario	Saskatchewan	Alberta	British Columbia	Northwest Territories	Canada	
	Quantity	Quantity	Quantity	Quantity	Quantity	Quantity	Quantity	Value
	Mcf.	Mcf.	Mcf.	Mcf.	Mcf.	Mcf.	Mcf.	\$
1955.....	188,549	10,852,857	6,706,743	133,007,493	—	18,670	150,772,312	15,098,508
1956.....	190,322	12,811,618	9,807,697	146,133,893	187,846	21,210	169,152,586	16,849,556
1957.....	176,417	14,400,913	13,994,347	183,140,820	8,274,942	19,243	220,006,682	20,962,501
1958.....	123,957	16,147,956	18,819,795	239,049,591	63,638,297	24,100	337,803,726	32,057,536
1959.....	117,502	16,839,236	33,612,966	297,568,926	69,128,708	67,189	417,334,527	39,609,393
1960.....	98,701	16,987,056	36,571,633	383,682,986	85,592,166	39,785	522,972,327	52,196,882
1961.....	96,318	14,544,165	37,192,595	500,843,900	103,018,988	41,678	655,737,644	68,421,918
1962.....	95,750	15,048,294	38,845,732	770,963,122	121,093,122	56,707	946,702,727	108,641,159
1963.....	103,524	15,920,055	39,936,193	943,351,973	118,058,994	51,478	1,117,425,217	150,468,714
1964.....	109,212	13,763,068	40,941,000	1,184,041,600	124,927,747	31,587	1,363,814,214	183,505,880

Subsection 6.—Production of Structural Materials

Active construction throughout Canada has kept production of structural materials at a high level in recent years. The value of such materials produced reached the record total of \$400,441,081 in 1964. In point of value, cement is the most important of the structural materials, followed by sand and gravel, stone, clay products and lime. Developments in the construction materials industries during 1964 are covered in the review at pp. 563-564.

Cement.—Shipments of cement in Canada reached an all-time high in 1964, output in that year being 10 p.c. above the previous peak of 1963. Consumption, continuing the almost steadily upward trend in evidence throughout the decade, also attained a record in 1964. Of the Canadian total of 7,745,000 tons shipped in that year, Ontario contributed 38 p.c. and Quebec 33 p.c.; all other provinces except Prince Edward Island and Nova Scotia contributed to the remainder.

28.—Producers' Shipments and Value, Imports, Exports and Apparent Consumption of Cement, 1955-64

NOTE.—Figures from 1910 are given in the corresponding table of previous Year Books beginning with the 1939 edition.

Year	Shipments (sold or used)		Imports ¹	Exports	Apparent Consumption ²
	tons	\$	tons	tons	tons
1955.....	4,404,480	65,650,025	517,890	168,907	4,753,463
1956.....	5,021,683	75,233,321	677,616 ³	124,561	5,574,738
1957.....	6,049,098	93,167,477	92,380	338,316	5,803,162
1958.....	6,153,421	96,414,142	41,550	141,250	6,053,721
1959.....	6,284,486	95,147,798	29,256	303,126	6,010,616
1960.....	5,787,225	93,261,473	22,478	181,117	5,628,586
1961.....	6,205,948	103,923,644	1,381	249,377	5,957,952
1962.....	6,878,729	113,233,726	2,973	219,164	6,662,538
1963.....	7,013,662	118,614,929	160	272,803	6,741,019
1964.....	7,744,516	133,087,366	250	297,669	7,447,097

¹ Standard portland cement, other than white.

² Shipments plus imports less exports.

³ Includes imported clinker.

Sand and Gravel.—Deposits of sand and gravel are numerous throughout Eastern Canada, with the exception of Prince Edward Island where gravels are scarce. The local needs for these materials are usually supplied from the nearest deposits as their cost to the consumer is governed largely by the length of haul. This accounts for the large number of small pits and the small number of large plants in operation. Every province except New Brunswick and Prince Edward Island produces natural bonded sand but some grades particularly suitable for certain industries command much higher prices than ordinary sand. The greater part of the sand and gravel output is used in road improvement, concrete works or as railway ballast, and most of the commercial plants are equipped for producing crushed gravel, a product that can compete with crushed stone. Shipments in 1964 were approximately the same as 1963.

29.—Producers' Shipments of Sand and Gravel, by Province, and Total Value, 1955-64

Year	New- foundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario
	tons	tons	tons	tons	tons	tons
1955.....	3,142,226	..	1,156,710	5,731,835	36,722,008	51,488,067
1956.....	2,490,580	..	1,675,458	6,140,029	37,175,708	61,436,363
1957.....	2,796,273	..	1,933,070	7,342,928	40,913,961	66,129,158
1958.....	4,062,985	..	2,333,792	4,015,976	40,507,787	67,469,064
1959.....	4,825,724	5,244,968	8,032,122	5,093,496	42,449,734	73,981,703
1960.....	3,912,533	474,184	8,717,693	6,184,924	46,255,963	77,660,833
1961.....	3,383,724	544,497	5,574,377	5,014,234	44,126,199	70,208,199
1962.....	4,250,942	531,196	4,375,842	5,128,365	44,000,000	76,600,813
1963.....	4,640,993	629,475	6,633,581	4,417,611	42,375,911	80,259,750
1964.....	3,930,010	187,600	6,439,028	4,798,699	43,111,121	75,333,285

	Manitoba	Saskatch- ewan	Alberta	British Columbia	Canada	
					Quantity	Value
	tons	tons	tons	tons	tons	\$
1955.....	5,272,676	5,039,682	7,819,933	11,151,337	127,524,474	67,775,053
1956.....	6,835,026	6,466,810	10,522,441	16,010,853	148,801,268	81,957,352
1957.....	6,647,280	6,565,563	11,801,422	15,699,857	159,829,512	91,939,354
1958.....	9,997,546	5,380,151	13,226,668	13,216,976	160,210,945	96,282,363
1959.....	9,261,553	5,898,136	13,271,695	17,064,615	185,123,746	104,651,461
1960.....	10,860,566	8,952,539	13,385,970	15,669,293	192,074,498	111,163,886
1961.....	7,402,385	7,626,197	12,591,944	14,279,191	170,750,947	104,654,132
1962.....	9,692,025	5,317,336	13,469,848	17,879,395	181,245,762	118,603,283
1963.....	9,653,471	7,368,017	16,139,744	17,451,950	189,570,503	123,854,254
1964.....	9,667,983	7,076,337	16,558,448	22,272,170	189,374,681	124,049,509

Stone.—The stone industry in Canada has two main divisions—stone quarrying and the stone products industry. The granite, limestone, marble, sandstone and slate quarries yield high-grade structural and decorative materials and also supply requirements for chemical and other allied industries but the major part of the tonnage produced is crushed stone.

30.—Producers' Shipments of Stone,¹ by Province, and Total Value, 1955-64

Year	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec
	tons	tons	tons	tons	tons
1955.....	333,982	..	367,320	1,075,230	12,633,335
1956.....	327,943	..	408,952	2,129,109	11,153,206
1957.....	348,373	..	434,726	1,285,811	16,053,665
1958.....	282,439	..	435,047	2,100,687	16,963,511
1959.....	352,231	1,700,000	1,393,668	2,119,136	20,437,243
1960.....	380,843	750,000	914,937	1,883,867	20,394,509
1961.....	322,820	225,000	1,021,880	2,957,886	22,648,010
1962.....	227,707	225,000	543,834	2,950,906	24,173,016
1963.....	382,260	225,000	457,525	4,418,799	30,003,825
1964.....	278,714	578,200	428,940	2,952,297	32,510,262

Year	Ontario	Manitoba	Alberta	British Columbia	Canada	
					Quantity	Value
	tons	tons	tons	tons	tons	\$
1955.....	12,739,139	228,157	45,659	3,090,098	30,512,920	43,736,687
1956.....	15,734,664	262,557	66,820	3,174,067	33,257,318	48,809,918
1957.....	17,390,438	454,972	80,565	4,233,531	40,232,081	59,197,662
1958.....	15,756,560	540,703	91,882	1,985,818	38,156,647	55,582,929
1959.....	17,288,796	526,696	528,961	2,092,804	46,439,535	60,958,784
1960.....	17,938,583	673,598	167,201	2,255,911	45,359,449	60,640,621
1961.....	18,361,843	594,921	96,753	2,709,691	48,938,804	66,567,668
1962.....	18,797,648	943,765	105,695	2,580,914	50,553,485	68,866,358
1963.....	20,402,614	3,693,144	138,894	2,935,268	62,655,329	79,883,419
1964.....	22,460,048	1,087,999	117,051	3,217,338	63,630,849	83,647,334

¹ Excludes limestone used to make lime or cement.

Clay Products.—The sales value of clay products shipped in 1964 was slightly higher than in 1963. Common clays suitable for the production of building bricks and tile are found in all the provinces; production is greatest in Ontario and Quebec. Stoneware clays are produced largely from the Eastend and Willows areas in Saskatchewan and shipped to Medicine Hat, Alta., where, utilizing the cheap gas fuel, they are manufactured into stoneware, sewer pipe, pottery, tableware, etc. Stoneware clay also occurs in Nova Scotia and, although it has not been developed extensively for ceramic use, some is used for pottery. Two large plants and a few small plants manufacture fireclay refractories from domestic clay in British Columbia, Saskatchewan and Nova Scotia. Deposits of high-grade, plastic, white burning clays occur in northern Ontario and deposits yielding high-grade china clay have been found along the Fraser River in British Columbia but these have not been used on a commercial scale, nor have the ball clays of high bond strength occurring in the white mud beds of southern Saskatchewan been developed to any extent.

31.—Value (Total Sales) of Producers' Shipments of Clay Products, by Province, 1955-64

NOTE.—Figures from 1926 are given in the corresponding table of previous Year Books beginning with the 1946 edition.

Year	New-foundland	Nova Scotia	New Brunswick	Quebec	Ontario
	\$	\$	\$	\$	\$
1955.....	49,338	1,196,968	704,025	8,451,362	18,314,320
1956.....	47,145	1,196,868	975,855	9,415,703	19,173,336
1957.....	29,500	1,345,361	803,169	8,898,855	18,353,299
1958.....	58,282	1,509,536	629,921	10,675,463	22,786,291
1959.....	68,000	1,638,789	743,966	10,374,162	22,174,895
1960.....	83,435	1,673,618	705,366	8,093,038	20,191,325
1961.....	75,890	1,582,153	744,293	8,195,790	19,036,556
1962.....	142,000	1,712,503	822,400	7,450,131	20,145,786
1963.....	92,120	1,337,430	623,166	6,852,660	21,819,687
1964.....	95,000	1,539,739	768,631	6,416,153	23,316,149

	Manitoba	Saskatchewan	Alberta	British Columbia	Canada
	\$	\$	\$	\$	\$
1955.....	635,554	992,307	2,800,481	2,115,415	35,259,770
1956.....	754,503	1,054,071	3,038,544	2,128,955	37,784,980
1957.....	827,697	1,015,389	2,628,187	2,020,701	35,922,158
1958.....	682,943	1,158,803	2,569,170	1,639,494	41,709,903
1959.....	618,550	1,374,834	3,572,920	1,949,332	42,515,448
1960.....	813,135	1,130,332	3,551,682	1,984,607	38,226,538
1961.....	623,966	1,115,474	3,517,473	2,091,353	36,982,948
1962.....	621,275	1,354,635	3,445,687	2,121,461	37,816,878
1963.....	594,072	1,044,721	3,452,835	2,337,603	38,154,294
1964.....	595,692	1,447,500	3,777,570	2,578,334	40,534,768

Section 5.—World Production of Certain Metallic Minerals and Fuels

Table 32 shows the production of certain metallic minerals and fuels in the different countries of the world for the year 1963. These figures are taken from the *United Nations Statistical Yearbook 1964* which presents production figures for a much more extensive list of mining and quarrying industries. The 1963 figures are provisional and have been converted from kilograms to ounces troy for gold, from metric tons to ounces troy for silver, and from metric tons to short tons for the other metals and fuels shown.

32.—World Production of Certain Metallic Minerals and Fuels, 1963

NOTE.—Where dashes occur throughout this table they indicate that no figures were given in the *United Nations Statistical Yearbook* either because there was no production or because the quantity was not available.

Country	Gold	Silver	Copper	Iron	Lead	Zinc	Coal	Crude Petroleum
	'000 oz.t.	'000 oz.t.	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons
Afghanistan.....	—	—	—	—	—	—	109.1	—
Albania.....	—	—	2.9	—	—	—	—	—
Algeria.....	—	—	1.1	1,133.2	9.0	37.0	41.9	26,330.9
Angola.....	—	—	0.1	435.4	—	—	—	881.8
Argentina.....	0.5	1,935.5	—	46.3	29.0	31.6	228.2	15,322.1
Australia.....	1,019.4	18,901.4	126.3	3,983.8	459.6	393.6	27,840.0	—
Austria.....	—	—	2.1	1,300.7	6.1	10.1	114.6	2,888.1
Bahrain.....	—	—	—	—	—	—	—	2,486.8
Bechuanaland.....	0.1	—	—	—	—	—	—	—
Belgium.....	—	—	—	32.0	—	—	23,609.3	—

32.—World Production of Certain Metallic Minerals and Fuels, 1963—continued

Country	Gold	Silver	Copper	Iron	Lead	Zinc	Coal	Crude Petroleum
	'000 oz.t.	'000 oz.t.	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons
Bolivia.....	80.2	4,886.9 ¹	3.3 ¹	—	22.3 ¹	5.1 ¹	—	454.2
Brazil.....	—	—	—	4,509.6	0.2	—	219,289.3 ²	5,144.5
Britain.....	—	—	—	—	—	—	—	137.8
British Guiana.....	2.6	—	—	—	—	—	—	—
Brunei.....	—	—	—	—	—	—	—	3,841.6
Bulgaria.....	—	—	23.4	280.0	109.8	81.1	725.3	190.7
Burma.....	—	2,076.9	0.2	—	22.2	8.9	2.2	703.3
Cameroon.....	1.4	—	—	—	—	—	—	—
Canada ³	4,003.1	29,932.0	452.6	30,143.6	201.2	473.7	10,575.7	38,327.2
Central African Republic.....	0.1	—	—	—	—	—	—	—
Chile.....	52.8	2,337.4	799.1	6,041.8	1.3	0.6	1,671.1	1,898.2
China—	—	—	—	—	—	—	—	—
Mainland.....	—	—	99.2	—	110.2	110.2	—	—
Taiwan.....	31.7	—	1.8	—	—	—	5,302.1	3.3
Colombia.....	324.5	106.1	—	308.6	—	—	3,527.4	9,089.7
Congo—	—	—	—	—	—	—	—	—
Brazzaville.....	3.0	—	—	—	—	—	—	120.2
Democratic Republic of (formerly Leopoldville).....	214.6	1,096.3	299.1	—	—	110.1	101.4	—
Cuba.....	—	—	5.5	—	—	—	—	9.9
Cyprus.....	—	—	29.0 ¹	—	—	—	—	—
Czechoslovakia.....	—	—	—	1,050.5	14.9	—	31,063.1	198.4
Ecuador.....	21.0	122.2	—	—	—	—	—	358.3
Fiji Islands.....	107.3	—	—	1.1	—	—	—	—
Finland.....	20.4	578.7	40.3	255.7	2.0	88.7	—	—
France.....	47.8	4,507.5	—	20,736.7	8.8	19.5	52,639.8	2,780.0
French Guiana.....	5.9 ¹	—	—	—	—	—	—	—
Gabon.....	35.7	—	—	—	—	—	—	981.1
Germany—	—	—	—	—	—	—	—	—
Eastern.....	—	—	26.5	549.0	11.0	11.0	2,737.0	—
Federal Republic of.....	127.0	12,001.9	2.4	3,443.6	58.2	119.2	157,394.6	8,138.4
Ghana.....	921.2	—	—	—	—	—	—	—
Greece.....	—	157.5	—	—	—	20.1	—	—
Greenland.....	—	—	—	—	—	—	44.1	—
Guatemala.....	—	—	—	—	0.8	1.3	—	—
Haiti.....	—	—	6.5	—	—	—	—	—
Honduras.....	3.1 ¹	4,845.1 ¹	—	—	—	8.3 ⁴	—	—
Hong Kong.....	—	—	—	70.5	—	—	—	—
Hungary.....	—	—	0.4	195.1	1.1	2.9	4,089.6	1,935.7
India.....	138.4	128.6	11.7	13,739.2	5.0	6.8	72,704.0	1,822.1
Indonesia.....	—	—	—	—	—	—	651.5	24,554.0
West Irian.....	—	—	—	—	—	—	—	116.8
Iran.....	—	—	—	—	11.0	8.3	—	80,500.7
Iraq.....	—	—	—	—	—	—	—	62,537.4
Ireland.....	—	—	—	—	—	—	229.3	—
Israel.....	—	—	8.6	—	—	—	—	166.4
Italy.....	—	1,006.3	1.8	561.1	35.7	115.1	644.9	2,022.7
Japan.....	432.6	15,213.7	118.2	1,502.4	58.1	218.3	57,377.5	865.3
Kenya.....	10.2	—	2.4	—	—	—	—	—
Korea—	—	—	—	—	—	—	—	—
North.....	—	—	8.8	—	55.1	121.3	—	—
Republic of.....	90.1	443.7	0.6	275.6	2.1	1.2	9,764.3	107,146.8
Kuwait.....	—	—	—	—	—	—	—	—
Liberia.....	—	—	—	4,753.2 ¹	—	—	—	—
Libya.....	—	—	—	—	—	—	—	24,293.8 ¹
Luxembourg.....	—	—	—	2,117.5	—	—	—	—
Madagascar.....	—	—	—	—	—	—	2.2	—
Malaysia—	—	—	—	—	—	—	—	—
Malaya.....	8.2	—	—	4,555.9	—	—	—	—
Sarawak.....	2.8	—	—	—	—	—	—	57.3
Mexico.....	236.0	42,760.5	61.6	1,539.9	209.4	264.3	1,350.3	18,114.3
Mongolia.....	—	—	—	—	—	—	881.8	—
Moreoco.....	—	771.6	2.2	671.3	21.5	36.4	445.3	165.3
Mozambique.....	—	—	—	—	—	—	312.0	—
Netherlands.....	—	—	—	—	—	—	12,686.5	2,441.6
Neutral Zone ⁵	—	—	—	—	—	—	—	18,465.9
New Caledonia.....	—	—	—	184.1	—	—	—	—
New Guinea (Australia).....	—	22.5	—	—	—	—	—	—
New Zealand.....	14.2	—	—	1.1	—	—	740.8	1.1
Nicaragua.....	—	—	8.0	—	—	—	—	—
Nigeria.....	0.3	—	—	—	—	—	636.0	4,157.9

For footnotes, see end of table.

32.—World Production of Certain Metallic Minerals and Fuels, 1963—concluded

Country	Gold	Silver	Copper	Iron	Lead	Zinc	Coal	Crude Petroleum
	'000 oz.t.	'000 oz.t.	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons
Norway.....	—	—	12.1	1,377.9	3.9	13.7	433.2	—
Pakistan.....	—	—	—	—	—	—	1,370.2	518.1
Peru.....	94.4	36,912.3	—	4,043.3	—	318.7	144.4	3,160.3
Philippines.....	376.0	774.8	70.2	869.7	0.1	4.3	173.1	—
Poland.....	—	—	14.6	793.7	42.7	162.1	124,726.5	233.7
Portugal.....	22.4	—	3.6	148.8	0.2	—	458.6	—
Qatar.....	—	—	—	—	—	—	—	10,025.5
Romania.....	—	—	—	806.9	13.8	—	6,233.6	13,484.6
Saudi Arabia.....	—	—	—	—	—	—	—	89,341.2
Sierra Leone.....	—	—	—	1,219.2 ¹	—	—	—	—
South Africa.....	27,445.6	2,736.0	60.4	3,135.0	—	—	46,798.6	6.6
South West Africa.....	—	1,311.8	35.5	—	83.2	36.7	—	—
Southern Rhodesia.....	566.3	83.6	18.5	447.5	—	—	3,020.3	—
Spain.....	14.6	—	7.4	2,976.2	67.0	90.3	14,325.6	71.7
Surinam.....	3.5	—	—	—	—	—	—	—
Swaziland.....	2.1	—	—	—	—	—	—	—
Sweden.....	117.7	3,581.6	19.8	15,633.0	75.7	89.7	109.1	87.1
Switzerland.....	—	—	—	41.9	—	—	—	—
Tanzania, United Republic of.....	102.5	—	—	—	—	—	2.2	—
Thailand.....	—	—	—	11.0	2.3	—	—	—
Trinidad and Tobago..	—	—	—	—	—	—	—	7,592.7
Trucial Oman.....	—	—	—	—	—	—	—	2,677.5
Tunisia.....	—	9.6	—	519.2	15.2	4.9	—	—
Turkey.....	—	—	28.1	489.4	3.0	5.2	4,577.9	821.2
Uganda.....	—	—	17.9	—	—	—	—	—
Union of Soviet Socialist Republics.....	—	—	771.6	87,589.6	396.8	451.9	435,555.0	227,153.2
United Arab Republic..	—	—	—	269.0	—	—	—	6,170.7
United States.....	1,468.7	34,999.3	1,213.2	45,792.2	253.4	529.2	474,489.8	410,060.8
Venezuela.....	26.9	—	—	8,287.2	—	—	46.3	187,030.2
Viet-Nam—	—	—	—	—	—	—	—	—
North.....	—	—	—	—	—	—	4,409.2	—
Republic of.....	—	—	—	—	—	—	114.6	—
Yugoslavia.....	74.0	3,790.6	68.5	895.1	112.0	67.6	1,417.6	1,775.8
Zambia (formerly Northern Rhodesia).	5.0	884.1	648.3	—	21.6	42.1	—	—

¹ Exports.
States.² Excludes Northern Ireland.
³ Jointly shared by Saudi Arabia and Kuwait.³ Final DBS figures.⁴ Imports into the United

CHAPTER XIV.—FISHERIES AND FURS

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

PART I.—FISHERIES

Section 1.—Commercial Fishing and Marketing, 1964*

Canadian fishermen reap large harvests from two mighty oceans—the Atlantic and the Pacific—and from the most extensive system of lakes and rivers in the world. The annual catch amounts to some 2,000,000,000 lb. of fish and shellfish, which has a total marketed value of about \$250,000,000. Only about one third of this output is used domestically and the remainder is shipped abroad in fresh, frozen, canned, salted, dried or otherwise preserved forms. Thus, Canada is one of the major suppliers of fish and fish products to world markets, being surpassed only by Japan and Norway in value of fish exports. There are more than 80,000 commercial fishermen in Canada and more than 13,000 persons employed in the fish processing industry.

Unquestionably the most important development in Canadian fisheries in 1964 was expansion in the Atlantic freezing industry, gathering speed after two years of careful planning at the capital investment level. In 1960, the Atlantic area was supplying about 60 p.c., by value, of the total Canadian fish output. Since then, the proportion has been creeping up, mainly owing to this growth in sales of frozen products.

The most significant factor on the Pacific Coast was the developing potential of the market for canned salmon. Because a small salmon run was predicted for the summer of 1964, canned salmon moved readily to market through the spring and most of it had been sold when the new fishing season started. It became apparent through the summer that the Japanese, the largest world suppliers, were getting a disappointing catch and that the cannery production schedules were lagging. The Alaska pack, also small, ensured that the United States would be a heavy buyer. However, Canadian runs proved to be of normal proportions; a good average pack of 1,200,000 cases went into British Columbia warehouses and prices climbed as buying became more and more competitive.

* Prepared by the Information and Consumer Service, Department of Fisheries, Ottawa.

The freshwater fisheries were beset by various kinds of bad luck through the spring and summer but pulled out of their decline during the fall. For the year as a whole, volume of catch, plant output and export shipments all declined, the latter by about 6,000,000 lb., but this was considerably offset by rising unit prices and an active late-year market so that the dollar volume was only slightly lower than that for the previous year.

Atlantic Fisheries.—During 1964, the Atlantic fishing industry established a new production record despite the difficulties of finding experienced crews for the expanded fleets and enough fish for the new production lines. The new electronically equipped vessels require crews with technical training and, at the output level, the fishermen's training schools did not quite keep up with demand, mainly because industrial activity in the area was generally good and the fisheries had to compete on a tight labour market. Partly because crew shortages sometimes delayed sailings, partly because of unusually bad weather, but mainly because some of the more-wanted fish species were rather scarce, the supply problem seemed less amenable to man-made solution than the crew problem. Redfish were hard to find and the halibut catch also declined. In 1963, 43 vessels cod-trap fishing off Labrador came back with 72,000 quintals of saltbulk; in 1964, 47 vessels brought in only 44,000 quintals. The resultant shortage, together with expanded buying of fresh cod by the freezing industry, prevented salters and dryers from taking full advantage of a good market. Norway and Spain were buying saltbulk; the West Indies and Portugal were placing large orders for heavy-salted cod; and Italy, Spain, Jamaica and Portugal were bidding competitively for the light-salted cure. Meantime, the major market for Canadian fish—the United States with its demand for frozen products—continued rapid expansion.

Maritime Provinces.—The year 1964 was the best on record for fishermen of the Maritime Provinces. They brought in 811,000,000 lb. of fish compared with the previous record of 696,000,000 lb. in 1960. They sold their 1964 fish for \$57,000,000, topping the all-time record of \$49,000,000 established in 1963.

These successes were not easily won. The year began with bad weather and a late spring. Harbours were still frozen over in April and arctic ice was still running steadily through the Gulf of St. Lawrence and out Cabot Strait in mid-May. Groundfish were plentiful offshore and the large new trawlers recently added to the fleets were able to cope with the weather but landings were practically limited to Petit de Grat, Halifax, Lunenburg and Beaver Harbour. On the boats the demand for experienced men exceeded the supply. On the docks the demand for fish exceeded the supply. In the warehouses orders for fresh, frozen and salted groundfish exceeded the supply. Orders for blocks and slabs of frozen cod fillets for the United States fish-stick industry continued upward. Salt-fish plants worked overtime to keep up with orders for hard-dried fish. Cuba was back in the market and other Caribbean countries were buying strongly. New York importers were asking for large shipments of boneless cod. By April most of the previous season's groundfish supplies had been processed, packed and shipped. Green salt cod was just beginning to come down from Newfoundland to Nova Scotia dryers as the weather loosened its grip on transportation. Few lobstermen could get their traps into the water when the lobster season opened and, as nearly all shore boats were immobilized by ice, those who did were short of fresh herring bait.

In these circumstances, fish prices rose to very tempting levels and as fast as clear ways opened through the ice floes operations jumped into high gear. The large new processing plant in Lunenburg opened in June and from then on, the major problem was to get enough fish.

Flounders were plentiful and very heavily fished throughout the season. Haddock were abundant through the summer but ran heavily to scrod during the autumn. A large proportion of the trap catch was pollock; freezing plants received more of this fish than they could use and sent the surplus to salters. Cod, redfish and halibut were scarce throughout the season but, as a result of intensive fishing, the groundfish catch increased by about 10 p.c. in quantity and between \$2,000,000 and \$3,000,000 in value. The over-all catch of

lobster was 2,000,000 lb. lower than in 1963 but buyer demands were heavy and prices rose steeply so that lobstermen's earnings were up by \$2,000,000. Packers found a particularly strong market for lobsters frozen live and put in nylon bags. The scallop industry continued its phenomenal expansion with shipments climbing another \$1,000,000 in value but toward autumn the volume showed signs of levelling off. Sword-fishermen increased their earnings by nearly \$1,000,000, although they brought in a somewhat smaller catch than in 1963; the halibut scarcity probably contributed to the demand for swordfish. Large herring were very plentiful but sardines were consistently scarce. The salmon catch increased slightly in both volume and value.

Newfoundland.—Newfoundland fishermen took a somewhat smaller catch than in 1963 but it earned them an unprecedented \$21,000,000. The inshore cod catch was smaller than average and redfish and haddock were scarce. Salmon and herring both yielded smaller and less valuable landings than in 1963. Offshore fishing was intensive but, although flounders and soles were abundant, over-all groundfish landings shrank in volume and did not improve upon the previous season in value. It was an increase in the lobster catch and the very high prices prevailing for this product that more than redressed the balance.

The freezing industry continued expanding its fleets and production lines, bought 43 p.c. of the cod catch and almost all of the flounders and other groundfish and attained a record output of 83,000,000 lb. of frozen groundfish products, 6 p.c. more than in 1963. Toward the end of the season, freezers were paying fishermen the highest cod prices ever recorded in the province. This limited the amount of cod remaining for the salters; their output at 440,000 quintals declined 17 p.c. from 1963. Prices offered for both light- and heavy-salted cod were at record levels.

Quebec.—The Gulf of St. Lawrence was blocked by ice until June and for this and other reasons Quebec suffered more than the other Atlantic Provinces and reached the end of the year with smaller groundfish, lobster and herring catches than in the previous season. However, the very high per-pound prices for lobsters and a good summer salmon fishery held the fishermen's collective income almost up to the record level of 1963. Their outlook was further brightened as plans matured for a large new plant at Paspébiac, to be built by the provincial government and operated by a Newfoundland fish company.

Pacific Fisheries.—Only twice before have British Columbia fishermen earned such a high collective income or the products of the plants reached such a high value as in 1964—once in 1958, the year of the famous sockeye bonanza, and again in 1962. The latter record only slightly surpassed the 1964 result.

The determining factor in 1964 was the size of the salmon runs. Salmon fishermen earned more than \$30,000,000, almost the same as in 1962 when the phenomenal run of pinks came to Bella Coola. Most surprising was the Skeena, where sockeye landings doubled the predicted figure and nearly equalled the all-time record. Sockeye also arrived in good quantities in Smith Inlet and the Fraser River, upon both of which the industry depends for a large proportion of its sockeye supplies. Two million pounds of pinks were taken in the Bella Coola area, where a scarcity had been predicted after two years of extreme abundance. Canneries packed all the chum salmon they could get through the summer because fall runs of this species were also expected to be small, but the fall runs were excellent and the chum pack was the largest in six years. The troll fleet, which catches chiefly cohoes and springs for the fresh fish market, accounted for two thirds of the coho catch of 29,000,000 lb. valued at \$9,250,000 (for the second successive year the most valuable of the salmon catches) and two thirds of the catch of springs, which brought \$5,500,000, making it the most valuable spring catch on record.

Halibuting opened in Bering Sea in March with 30 Canadian vessels getting only a poor catch. When fishing started off the British Columbia coast on May 1, warehouse supplies had dwindled and prices were above the low level at which they opened in the

previous year. Especially as United States landings also fell off, prices stayed up throughout the season, which ended Aug. 19 with the Canadian catch down 10 p.c. in volume from 1963 but up slightly in value to \$8,300,000, second only to the record \$10,900,000 in 1962.

A three-year international agreement, which put fish meal exports of the supplying countries on a quota basis, ran out in December 1963 and was re-negotiated for another three years with double the original allotment to Peru. The market had expanded rapidly during 1963. Canada's herring season that closed in March 1964 had a catch and meal output at near-record levels and the oil output reached a record 4,900,000 gal.; the unit price of oil had risen during 1963 from 5.50 cents to 9.25 cents. The new season began with active herring fishing during the summer, while the already strong market for both meal and oil became even firmer because of sharp fluctuations in Peru's landings of reduction fish. However, autumn operations were interrupted from Oct. 22 to Nov. 14 while the fishermen were out on strike but winter fishing yielded well and by the end of January 1965 the gap had been almost closed; the volume of oil production was ahead of the previous season and meal output was almost as high. For the calendar year 1964, the herring catch totalled 253,000 tons, close to the record.

Inland Fisheries.—Throughout the spring, the export market for freshwater fish was slow and fishing effort and catch were light. The summer was hot, catches remained small, ice was often scarce and quality hard to maintain and the fishermen could earn more fighting forest fires. By September firms were falling behind on their orders, especially on block fillets for the United States gefilte fish industry. Most disturbing of all was a growing conviction among fishery biologists that pollution in Lake Erie, which yields the largest catches, had quite possibly passed the point of no return. The catch of yellow perch was less than half that of 1963.

Elsewhere, however, all trends were upward from September to the end of the year. The open-water fishery on Lake Winnipeg ended with a 30-p.c. increase in the whitefish catch and fair results with sauger. Improved supplies of lake trout from Wollaston and Reindeer Lakes were sold as fast as they could be shipped. Lakes Superior and Nipigon had good fall runs of whitefish, and herring fishing on Superior yielded well.

By October, heavy supplies were moving steadily into cold storage and from early November to the holiday season the out-of-storage movement was even stronger. Mail-order trade in pan-ready products became active; food chains placed large orders for tray-pack items; several new cooked products were so well received that a number of plants expanded their cooking facilities. Much of the filleted fish went into blocks and five-pound packages but there was also a strongly expanded market for whole dressed fish.

Section 2.—Governments and the Fisheries

The British North America Act gave the Federal Government full legislative jurisdiction for the coastal and the inland fisheries of Canada and under this Act laws are made for the protection, conservation and development of the fisheries throughout the country. However, the provinces have, by agreement, assumed administrative responsibilities in varying degrees. Consequently, although all the regulations governing fishing are made by the Federal Government, the work of administering the fisheries (enforcing the different laws and regulations, inspecting fish products, issuing licences, etc.) is done without duplication of staff by either federal or provincial officers, according to arrangement.

Specifically, all tidal or sea fisheries except those of the Province of Quebec are administered by the federal Department of Fisheries, and the freshwater or non-tidal fisheries, with some exceptions, are administered by the provincial departments. Quebec takes responsibility for all its fisheries including those in salt waters. Ontario, Manitoba, Saskatchewan and Alberta administer their freshwater species. In British Columbia, provincial government control extends to the freshwater forms and the Federal Government is responsible for marine and anadromous species. In Prince Edward Island, Nova

Scotia, New Brunswick, Newfoundland and the Yukon and Northwest Territories, the Federal Government maintains complete control; administration of the fisheries of the National Park areas throughout Canada is the responsibility of the Canadian Wildlife Service, Department of Northern Affairs and National Resources.

Federal-Provincial Relations.—To meet special fishery problems where the interests of both federal and provincial governments are concerned, four Federal-Provincial Fisheries Committees have been established. Two were in existence prior to 1964—the Federal-Provincial Atlantic Fisheries Committee, consisting of representatives of the Federal Government and the Governments of Quebec, New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland, and the Federal-Provincial Committee for Ontario Fisheries. Two others were established during 1964 as a result of the Federal-Provincial Conference on Fisheries Development held in Ottawa in January—the Federal-Provincial Prairie Fisheries Committee and the Federal-Provincial British Columbia Fisheries Committee.

Members of the Committees are the Deputy Minister of Fisheries of Canada, the Deputy Ministers of provincial departments responsible for fisheries and, where only one province is involved, members of federal and provincial agencies, who are included to bring the committees up to strength.

Sub-committees make recommendations for industrial development, research and marketing problems. The main committee in each case co-ordinates, where practicable, all activities in the respective fields of responsibility of its members, and suggests to the respective governments means of carrying out fisheries programs and projects of common concern. These include the development of methods and techniques in the catching of fish and of shore and plant facilities, and studies of the economics of fisheries to ensure that any proposed program of development is soundly based.

Subsection 1.—The Federal Government

The work of the Federal Government in the conservation, development and general regulation of the nation's coastal and freshwater fisheries is performed by three agencies under the Minister of Fisheries:—

- (1) The Department of Fisheries proper with headquarters at Ottawa, Ont., and area offices under Area Directors at Vancouver, B.C., Winnipeg, Man., Quebec, Que., Halifax, N.S., and St. John's, Nfld.
- (2) The Fisheries Research Board of Canada with headquarters at Ottawa and eight stations across Canada.
- (3) The Fisheries Prices Support Board with headquarters at Ottawa.

A brief outline of the functions of each of these agencies is given in this Subsection.

The Department of Fisheries.—The chief responsibilities of the Department of Fisheries throughout Canada are, in brief: to conserve and develop Canada's primary fishery resources; to encourage the development of the fishing industry in the national economy; to inspect fish products, establish standards of quality and promote the optimum utilization of the resource; and to develop a proper public understanding of the resource and the industry. The larger part of the staff of the Department is stationed in the field and is composed mainly of protection and inspection officers. The protection officers, including those on the Department's 80 patrol and protection vessels, are concerned with the enforcement of the conservation regulations under the Fisheries Act and other Acts designed to ensure a continuing maximum yield of fish, and are also responsible for the inspection of fish products and processing plants under the Fish Inspection Act and relevant section of the Meat and Canned Foods Act.

A conservation program is carried out by the Conservation and Development Service of the Department. Protection officers enforce regulations pertaining to restricted areas, close seasons, limitations in location and types of gear, and also inspect spawning streams

and keep them clear of obstructions. Biologists and engineers work together to provide solutions to such problems as pollution, multi-use of water resources, floods, droughts, obstacles to fish passage, etc. Advanced techniques of improving the spawning and rearing environment of the salmon have thus been developed. Among these, man-made spawning channels have attracted world-wide attention and interest. At some locations in Canada, fish hatcheries are maintained to rehabilitate stocks.

Inspection of fish and fish products to ensure a high standard of quality is carried out by the Inspection Service with field officers at major fish processing points across Canada. Fish Inspection Laboratories are maintained on the Atlantic and Pacific Coasts and in Toronto and Winnipeg.

Through the media of printed material, films, radio, television and exhibitions, the Information and Consumer Service informs the public on the various aspects of the industry and the work of the fisheries services. This Service works closely with the Conservation and Development Service in matters concerning the conservation of fisheries and with the Inspection Service toward encouraging increased consumption of Canadian fish products in the domestic, United States and other markets. A staff of home economists operates test kitchens in Ottawa, Toronto, Vancouver, Montreal, Halifax, Edmonton and Winnipeg, and conducts demonstrations and lectures on methods of preparing and cooking fish and fish products.

The Economics Service has two related fields of responsibility: (1) to provide the government and the commercial fishing industry with current information, including statistical data, under the general heading of trade intelligence, and (2) to carry out studies and investigations in the primary fisheries and in the processing and distribution of fish products.

In addition to these regular services, the Department assists the commercial fishing industry in several special ways. To promote efficient primary fishing operations and improve the marketing of fishery products, assistance is provided for the construction of draggers and longliners and for bait-freezing and storage facilities on the Atlantic Coast. The Fishermen's Indemnity Plan affords low-cost protection from losses of boats and lobster traps through storms and other causes. The Plan has been in operation since 1953 and at Dec. 31, 1964, a total of 7,006 vessels with an appraised value of \$25,705,000 were insured under it. The Department also provides financial assistance to educational institutions agreeing to carry out specialized educational work among fishermen.

International Fisheries Conservation.—Conservation of the resources of the high seas can be effected only through regulation, and for this purpose international treaties have had to be made. Canada's obligations under such treaties with the United States and other countries are administered by the Department of Fisheries.

Canada and the United States have led the world in joint fisheries conservation development. Major examples of this joint effort are the International Pacific Halibut Convention, concerned with the preservation of the halibut stocks of the north Pacific and the Bering Sea, and the International Pacific Salmon Fisheries Convention, concerned with the conservation and development of the sockeye and pink salmon of the Fraser River. Investigations carried out under the auspices of commissions appointed under these conventions, subsequent regulation and limitation of catches, and the construction of salmon fishways appear to have been successful in arresting and reversing an earlier trend toward depletion of these fisheries. Another example of restoring a depleted marine resource by international agreement and action is that of the fur seals of the Pribilof Islands in the Bering Sea. Under a treaty signed in 1911, known as the (North Pacific) Sealing Convention, pelagic sealing was prohibited while the animals were migrating to and from the Pribilofs where most of them breed. This treaty had been signed by the United States, Canada, Russia and Japan, and was one of the earliest conventions on resources of the sea. In 1941 Japan abrogated the treaty and the following year Canada and the United States signed a Provisional Fur Seal Agreement under which Canada, in return for abstaining from pelagic sealing, received 20 p.c. of the annual catch, which was supervised by the

United States. A conference to re-negotiate the original convention was begun in Washington in November 1955 and a new settlement was signed by the original four countries on Feb. 9, 1957.

In 1949 the Government of Canada became a signatory, along with nine other countries, to the International Northwest Atlantic Fisheries Convention which came into force in 1950. The Commission established under this Convention, with headquarters at Halifax, N.S., makes scientific investigations of the fishery resources of the northwest Atlantic. The Commission has no regulatory powers but can make recommendations to the respective governments regarding measures that may be necessary for maintaining the stocks of fish that support the international fisheries in the Convention area. Treaty signatories now are: Canada, Denmark, Iceland, the United States, Britain, France, Italy, Norway, Poland, Portugal, Spain, the Federal Republic of Germany and the Union of Soviet Socialist Republics.

A step toward international action in regulating the high seas fisheries of the northern Pacific Ocean was achieved in December 1951 when Canada, the United States and Japan conferred at Tokyo. The resulting Convention was ratified by the three contracting governments and instruments of ratification were deposited at Tokyo in June 1953. The treaty is known as the International Convention for the High Seas Fisheries of the North Pacific Ocean and aims at providing the maximum sustained yield of the fishery resources of the northern Pacific non-territorial waters with each of the parties assuming obligations to encourage conservation measures. The Commission established under this Convention is studying the northern Pacific fisheries and will determine the application of the treaty principles and promote and co-ordinate the necessary scientific studies.

The seventh, and latest, international fisheries agreement to which Canada is a signatory is the Great Lakes Fisheries Convention, which provides for joint action by Canada and the United States in Great Lakes fishery research and in a program for the control of the predator lamprey in these waters. This Convention came into force in October 1955.

Canada is a member of the International Whaling Commission and is obligated to collect biological data on whales caught by Canadian vessels. Whaling operations are conducted in some years off the Atlantic and Pacific Coasts.

The Fisheries Research Board of Canada.—The Fisheries Research Board is a research organization established by Act of Parliament (RSC 1952, c. 121) for the purpose of conducting basic and applied research on Canada's living aquatic resources, their environment and their utilization. Its antecedents go back to 1898 and it is thus the lineal descendant of one of the oldest scientific organizations in Canada and one of the oldest government-supported research organizations under the supervision of an independent scientific board in North America.

By its Act, the Board is placed under the control of the Minister of Fisheries. The Board proper consists of a permanent chairman, who is appointed by the Governor in Council and who is a member of the Public Service of Canada, and "not more than eighteen other members" holding honorary appointments from the Minister of Fisheries for five-year terms; the Act requires that "a majority of the members of the Board, not including the chairman, shall be scientists, and the remaining members of the Board shall be representative of the Department [of Fisheries] and the fishing industry". The scientific members are drawn principally from universities and research foundations across Canada, to include specialists in disciplines related to the Board's work. The industry members are selected from among Canada's leading business men with an intimate knowledge of fishing and the fishing industry and the Department of Fisheries representative is usually a senior staff member in Ottawa. Board members have both advisory and executive functions. The advisory functions are delegated in the first instance to regional Advisory Committees who conduct on-the-spot regional reviews and report to the Board on the operations and scientific programs with a view to their improvement. The executive functions are delegated to an Executive Committee elected from Board members and approved by the Minister.

The operations of the Board are highly decentralized, there being only a small administrative, supervisory and publications staff in Ottawa. The Board employs approximately 800 persons, of whom about 200 are scientists.

Biology.—The biological program of the Board is designed to add to fundamental knowledge concerning Canada's vast living marine and freshwater resources. Included here are life history, population and behaviour studies leading to a sound scientific basis for the conservation and management of the commercially important fisheries including those for lobsters, crabs, shrimps, oysters, scallops, clams, marine mammals and other well known economically important aquatic species of animals, such as salmon, cod, herring and halibut, as well as some marine plants, such as phytoplankton and seaweeds. Also included are studies in fish and shellfish diseases, fish enemies including the ill effects of water pollution, and such basic studies as fish genetics, physiology and behaviour, the latter with a view to improving fish cultural and farming methods and also to improving fish farm and hatchery stocks. Besides these basic studies, new fishing grounds and new species for exploitation are sought and experiments in improving fishing methods are undertaken.

The biological work on the Atlantic Coast is conducted out of research stations located at St. Andrews, N.B., and St. John's, Nfld.; work on arctic fisheries and on sea mammals is directed from a laboratory situated in Ste. Anne de Bellevue, Que.; freshwater work is carried out from a station in London, Ont.; and work on the Pacific Coast is directed from research laboratories situated at Nanaimo, B.C. The Board operates 18 research vessels for its biological studies, varying from small inshore and lake craft to specially built seagoing ships. The Board acts as Canada's research agent for three international fisheries commissions and two international sea-mammal commissions to which Canada is party.

Oceanography.—Oceanography includes the study of the marine (and freshwater) environment in which aquatic organisms live. This is under continuing study to further knowledge in primary and secondary productivity and the occurrence of ocean and freshwater life of importance to man. Encompassed here also are investigations into the distribution and physical and chemical characteristics of major ocean currents and the physical and biological structure of large ocean areas including the ocean bottom where concentrations of fish and other aquatic life occur. Ocean climate and ocean weather as they affect the distribution of fish and other living organisms as well as the vertical and horizontal distribution of nutrient matter and the cycle of energy and life in the seas are regularly observed and correlated. These studies, as well as special studies of interest to the Royal Canadian Navy, the Department of Transport and the international fishery commissions, are carried out by the Board's two oceanographic groups operating from Dartmouth, N.S., and Nanaimo, B.C., with strong ship support from the Navy and the Department of Transport, and co-operation from the Department of Mines and Technical Surveys.

Technology.—Investigations are conducted toward improving methods of preserving, processing, storing and distributing fish products, as well as of utilizing all parts of the fish. These include developments in refrigeration and the use of antibiotics as fish preservatives, of improved refrigerated rail cars for fish distribution, improvements in canning, smoking and salting of fish as well as the development of new products such as protein concentrates (fish flour) and new uses such as the development of wieners for the utilization of abundant species that are not now used for food. Fundamental studies of the structure and composition of fish proteins, fish oils, fish hormones, the energy expenditure of migrating salmon and the nutrition of marine bacteria are under way.

Technological investigations on the Atlantic Coast are carried out at research laboratories situated at Halifax, N.S., and Grande Rivière, Que., and applied work for Newfoundland is carried out at a Technological Unit at St. John's. For inland areas there is a Technological Unit in London, Ont., and a Technological Research Laboratory in Vancouver, B.C., undertakes investigation of Pacific Coast problems.

The Fisheries Prices Support Board.—Under the Fisheries Prices Support Act passed in 1944, this Board was set up in July 1947 to recommend to the Government price-support measures when severe price declines occur. The Board functions under the direction of the Minister of Fisheries and consists of a chairman, who is a senior officer of the Department of Fisheries, and five members chosen from private and co-operative firms in the industry, representative of the various fish-producing regions of Canada.

The Board has authority to buy quality fishery products under prescribed conditions and to dispose of them by sale or otherwise, or to pay to producers the difference between a price prescribed by the Board and the average price the product actually commands. The Board has no power to control prices nor has it any jurisdiction over operations in the fishing industry or the fish trade. Money necessary for dealings in fishery products is available to the Board from the Consolidated Revenue Fund to a maximum amount of \$25,000,000 but only on recommendation of the federal Treasury Board and authorization of the Governor in Council.

The Board maintains a small staff for administrative activities. The work is closely integrated with that of the Department's Economics Service and, where possible, services required by the Board are carried out by Department personnel. The Board has carried out field surveys on market conditions and possibilities and on factors affecting the income of fishermen in the various producing areas. The financial position of fishermen is kept under continuous review and recommendations are made to the Government on the basis of the findings. Special investigations are made when serious problems arise in particular areas.

Subsection 2.—The Provincial Governments*

An outline of the work undertaken by each of the provincial governments in connection with administration of commercial and game fisheries is given in the following paragraphs.

Newfoundland.—The provincial Department of Fisheries in conjunction with the Newfoundland Fisheries Development Authority, a Crown corporation established in 1953, is concerned mainly with the improvement and development of fishing and production methods. It conducts experiments and demonstrations in longlining, Danish seining and otter trawling, in the construction of multi-purpose fishing craft, and in the exploration of potential fishing grounds.

Loans are made to processors for the establishment and expansion of fish processing plants and for deepsea draggers and also to fishermen for the construction and purchase of modern vessels capable of a greater variety of fishing operations and larger production. Fishermen receive further aid through bounty payments at the rate of \$160 a ton for newly constructed vessels under the Fishing Ships (Bounties) Act, 1955. The Fishing and Coasting Vessels Rebuilding and Repairs (Bounties) Act, 1958 authorizes the government to assist financially in maintaining and prolonging the life of the existing fleet. The Coasting Vessels (Bounties) Act, 1959 authorizes the granting, for locally built ships, of a maximum bounty of \$300 a ton for vessels measuring from 15 to less than 100 gross tons, and \$150 a ton for vessels of between 100 and 400 gross tons. An Inshore Fisheries Assistance Programme provides a maximum bounty of \$10 a foot on boats measuring from 24 to 35 feet and bounties are paid to fishermen on certain types of nylon and other synthetic fibre fishing nets and lines.

Other services include advisory services to fishermen on gear and equipment, industrial research, plant construction, plant engineering and economics; assistance to fishermen's unions; weather and ice reports; and search and rescue. The Fisheries Salt Act, 1957 implements more rigid control over the use of fisheries salt.

Sport Fisheries.—The inland waters of Newfoundland, although they provide excellent sport fishing, are not commercially exploited. The lakes and ponds actually remain under

*Prepared by the respective provincial departments responsible for fisheries administration.

the authority of the Natural Resources Branch of the provincial Department of Mines, Agriculture and Resources but, under federal-provincial agreement, these waters, including rivers and streams, are under federal control in matters of conservation and guardianship.

Prince Edward Island.—The sea and inland fisheries of Prince Edward Island are administered by the Federal Government. The provincial Department of Fisheries supplements federal activity and is concerned mainly with development of the fisheries industry. The Department provides technical assistance and, in conjunction with the Fisheries Research Board of Canada and branches of the federal Department of Fisheries, engages in some experimental work.

Financial assistance is made available to fishermen through the Fishermen's Loan Board of Prince Edward Island, a body corporate operating under the provincial Department. The Fishermen's Loan Board operates under authority given by the Re-establishment Assistance Act and regulations thereunder, approved by the Lieutenant-Governor in Council, Jan. 7, 1949, with amendments. Loans are made to fishermen and companies for the purchase of boats, engines and other deck machinery at an interest rate of 4 p.c. From its reorganization in 1949 until the end of March, 1964, the Board has lent \$3,073,692 for the modernization of the inshore and offshore fleets. Loans for the construction or expansion of processing plants are available through the Industrial Establishments Promotion Act under which loans may be made for facilities handling agricultural, horticultural or fishery products.

Sport Fisheries.—Game fisheries are the responsibility of the Department of Fisheries. The streams of the province, mostly spring-fed and fairly constant in flow, provide very favourable conditions for the reproduction of game fish, of which speckled trout is the most important variety. Investigations concerning the production of trout of a size attractive to anglers are being conducted by the Fisheries Research Board of Canada at sites provided by the provincial Department. Unfortunately, many of the formerly fertile and highly productive ponds of the province have disappeared, and the provincial Department is actively concerned with damming and restoring these for the enjoyment of the public.

Nova Scotia.—Although the Federal Government has exclusive jurisdiction over the marine and inland fisheries of Nova Scotia and attends to all phases of administration related thereto, the Nova Scotia Government operates in several fields where provincial initiative is found to be necessary and appropriate, having regard for the importance of the fishery resources in terms of employment, industry, trade and recreation.

In the commercial fisheries, provincial government interests are the concern of the Nova Scotia Department of Fisheries. The Fishermen's Loan Board is administered by that Department and the Industrial Loan Board by the Nova Scotia Department of Trade and Industry; the first makes loans to fishermen for the purchase of boats and engines and the second makes loans for the construction or improvement of fish processing plants. Fisheries engineers perform inspection and survey duties for the Loan Boards and provide technical assistance and advice to loan applicants and others in the fisheries and allied industries, notably the boatbuilding industry. Instructors conduct courses for fishermen in the care and maintenance of marine engines, in basic navigation and in the design, construction and maintenance of gear. This program receives substantial assistance from the Technical and Vocational Training Branch of the federal Department of Labour. The on-course instruction is supplemented frequently by informal on-the-spot assistance to smaller groups who find themselves in need of technical help with particular problems. The Nova Scotia Department of Fisheries, with the financial and/or technical assistance of the federal Department of Fisheries, organizes and conducts demonstrations of fishing methods and gear of types untried in some or all of the several fishing areas of the province.

Sport Fisheries.—In recent years, Nova Scotia, through the Wildlife Division of its Department of Lands and Forests, has spent a considerable amount of money on management and research in certain lakes and streams in the province with a view to aiding the Atlantic salmon and trout fishery. A continuing program of lake and stream investigations was begun in 1961 in order to obtain information useful in the formulation of a fish management program for the future. A system of rearing ponds, capable of producing 200,000 yearling speckled trout annually have been established on the Medway River in Queens County and the Moser River in Halifax County. Several projects dealing with reclamation, farm ponds, rainbow trout and small mouth bass are also being conducted. A full-time fisheries biologist is employed by the Division.

New Brunswick.—Commercial fishing is one of the most important basic industries of New Brunswick, employing around 6,000 fishermen with annual earnings of over \$10,000,000 and about 2,800 plant workers. The annual marketed value of fish products is about \$33,000,000.

New Brunswick fisheries, both tidal and inland, are under the legislative jurisdiction of the federal Department of Fisheries, and angling in Crown waters is under the jurisdiction of the provincial Department of Lands and Mines. To supplement the activities of the federal Department of Fisheries and to make practical application of research data obtained from the Fisheries Research Board of Canada and other agencies, the New Brunswick Government created a Department of Fisheries in 1963 having three Branches—Administration Branch, Boatbuilding and Maintenance Branch, and Exploratory Fishing and Education Branch. The Department also conducts fish inspection control under authority of the Fish Inspection Act, 1964.

Since its inception in 1946, the Fishermen's Loan Board of New Brunswick, now under the administration of the Department, has disbursed over \$13,000,000 for the construction of fishing vessels and the purchase of modern gear and equipment for the commercial fishermen of the province. Loans ranging from \$1,500 to \$3,000 are made available to inshore fishermen for the purchase of lobster boats and marine engines, and amounts ranging from \$15,000 to \$225,000 are lent to offshore fishermen and companies for the construction of modern Danish seiners, purse seiners, draggers and trawlers. These amounts represent 70 p.c. of the total cost of each unit after deducting down payments and Federal Government subsidies. This long-term assistance program has been largely responsible for the doubling of the value of the fishing fleet during the past 15 years. Commercial fishermen now own a modern fleet of 90 groundfish draggers, seven steel stern trawlers, 27 Danish seiners, two steel tuna seiners, 35 herring purse seiners and more than 3,000 inshore boats.

New and improved designs of fishing vessels are under constant study by the technical staff of the Department in co-operation with naval architects, boatbuilders and fishermen. A certain pattern of standardization is followed to keep building and maintenance costs low because fishing has become very competitive with the influx of large foreign fishing vessels on Canadian east coast fishing grounds. Multi-purpose types have been successfully introduced in inshore fisheries of the Gulf of St. Lawrence area, capable of being converted easily into longliners, Danish seiners or scallop draggers. Modified versions of the 65-foot groundfish dragger, equipped with more powerful diesel engines and larger nets, have proved very efficient. Stern trawlers, the first to be built in North America, were added to the New Brunswick fleet in 1962. Two ultra-modern tuna seiners, built in a New Brunswick shipyard, are operating successfully off the south shore of the province.

Exploratory projects conducted by the Department in co-operation with the Federal Government have led to the practical introduction of many modern techniques and types of gear not generally in use by Atlantic Coast fishermen. And to educate the fishermen in the use of such vessels and gear, intensive training in navigation, motor mechanics, electronic devices, fishing gear technology, bacteriology, marine biology and other related subjects is being given at two schools of fisheries, each of which is equipped to give instruction to 50 students a year.

Sport Fisheries.—Sport fishing contributes substantially to the economy of the province, mainly through the tourist trade. Great Atlantic salmon rivers like the Miramichi, the Restigouche and the St. John are known around the world for their prolific production of this majestic game fish and attract many thousands of tourists to the province each year. Anglers catch as many as 50,000 salmon a year in the Miramichi system alone. Many other species are also sought after by both residents and non-residents in the hundreds of streams, rivers and lakes of the province.

Quebec.—The Quebec Government, through its Department of Industry and Commerce, gives much consideration to the administration of the commercial fisheries of the province. For the benefit of producers and fishermen, it operates a network of cold storage plants for the freezing and preservation of fish. The network comprises about 60 plants, together having a daily freezing capacity of 500 tons and a storage capacity of 25,000,000 lb. of fish. These plants also perform a valuable service to fishermen by providing them with frozen bait and ice. In addition, the Department owns and maintains about 125 stations in small fishing ports where fish is kept under proper conditions while awaiting collecting trucks or boats, and operates an artificial drying plant with a processing capacity of 3,000,000 lb. of fish annually. A staff of fish wardens, technicians and technologists administers fishery legislation and assists in the application of new techniques for the expansion of the industry. The central administration is located at Quebec City with offices at the principal fishing centres for administration of the Protection, Refrigeration and Maritime Economy Services. Fish inspection is carried out by federal inspectors who are vested with additional powers by the provincial government with respect to local sales.

Educational work among the fishermen and producers is conducted by the Department to teach the latest methods of fish preparation and of obtaining high-quality products. The Fisheries Training School at Grande Rivière gives to fishermen of all ages the opportunity of taking free theoretical and practical courses in fishery. Encouragement is given to the Co-operative Associations of Fishermen through the Social Economic Service of Ste. Anne de la Pocatière subsidized by the Federal Government. Under a maritime credit system, fishermen may obtain loans from credit unions for the purchase of boats and gear. Fish consumption is promoted through advertising campaigns in newspapers and magazines, exhibits at fairs, cooking demonstrations, educational films and the free distribution of fish recipes and publicity leaflets.

The Department adheres to the federal-provincial agreement on the building of dragners and longliners and assumes the building costs on a capital refunding plan. At the end of 1964, the fishing fleet of Quebec consisted of 87 dragners up to 82 ft. long, two dragners 129 ft. long, eight longliners, 49 small longliners and two Danish seiners, representing an investment of over \$7,000,000. After deduction of the federal subsidy, the cost to the fishermen was approximately \$5,000,000.

Biological and hydrographical research in the Gulf of St. Lawrence is directed by the Marine Biological Station at Grande Rivière and a laboratory is operated at Quebec City for the study of the biology of freshwater fish of the St. Lawrence River and its tributaries. The Quebec Aquarium at Quebec City exhibits freshwater and saltwater fish in 60 large tanks.

Sport Fisheries.—The Department of Tourism, Fish and Game exercises jurisdiction over the inland waters; it employs 250 full-time wardens. Licences are required for sport fishing and hunting. Four hatcheries are maintained at strategic points throughout the province—St. Faustin, Lac Lyster, Tadoussac and Gaspé. These establishments distribute speckled trout, Atlantic salmon and grey trout fry, maskinonge fingerlings and older fish in public waters.

The Department administers six parks and seven reserves in all of which, except for Mont Orford Park, excellent fishing may be found. Gaspesian and Laurentide Parks are

renowned for their trout fishing. Chibougamañ Reserve and La Vérendrye Park, situated on the height of land, are eminently suited to canoe trips in search of pickerel, pike and grey or speckled trout. Five salmon streams are open to anglers—the St. Jean River, the Petite Cascapédia River, the Matane River, the Port Daniel River and the Matapédia River. A joint committee composed of departmental officials and the directors of the federation of fish and game associations recommends the proper legislation for the maintenance of satisfactory fishing and hunting conditions and other problems arising out of the ever-changing conditions of modern life and their effect on the wildlife of the province.

Ontario.—The fishery resources of Ontario are administered by the Fish and Wildlife Branch, Department of Lands and Forests. The Branch operates under the authority of the federal Fisheries Act, the Fishery Regulations for the Province of Ontario, the Ontario Game and Fish Act and the Regulations connected therewith.

Commercial Fisheries.—The commercial fishing industry in Ontario provides employment for about 3,000 persons directly and for many more indirectly, and produces an annual yield of from 45,000,000 lb. to 55,000,000 lb. of fish. The industry, although widely scattered throughout the province, is centred chiefly on the Great Lakes, particularly Lake Erie. The principal species of fish taken commercially are perch, smelt, whitefish, pickerel, lake trout, white bass, pike, herring, chub, sheepshead, carp, catfish and bullheads, sturgeon, eels, goldeyes, rock bass, sunfish and suckers. Over one hundred smaller inland lakes are commercially fished, principally those in the northwestern portion of the province, and careful management of these lakes is essential to ensure continued production.

The types of fishing boats in use vary from small craft to 60-foot tugs, and types of gear vary from gillnets, pound-nets and trap-nets, seines and baited hooks to small hand-operated seines and dip-nets. Fishing methods and equipment have been modernized extensively during the past few years. Diesel-driven steel-hull tugs have replaced steam-driven wooden tugs, such aids as depth-sounding devices, radar, ship-to-shore and ship-to-ship communications have been developed and a better knowledge of the fish and their movements has been established from biological research findings. Modern icing facilities and transportation methods are in use as well as new types of fishing gear. Trawling has proved very efficient in harvesting smelt on a year-round basis in Lake Erie.

Most Ontario fishermen are organized into various local associations. Many of these associations are, in turn, represented by the Ontario Council of Commercial Fisheries which performs important services to the industry. The Ontario Fishermen's Co-operative and its member groups are of interest also in the organization of the fishery in the province.

Sport Fisheries.—Angling in Ontario is rapidly becoming one of the major industries of the province. With an estimated freshwater area of some 68,490 sq. miles, the province is one of the most attractive fishing areas on the Continent. Excellent angling opportunities are available for such prized fish as brook, rainbow, lake and brown trout, walleye, smallmouth and largemouth bass, pike and maskinonge. It is difficult to measure the total value of the sport fishing industry to the province but the annual revenue from the sale of angling licences alone (mainly to non-residents, as residents require a licence for provincial parks only) is in the neighbourhood of \$2,500,000. The management of this valuable resource is administered by a well-trained field staff of conservation officers and biologists located in the 22 forest districts of the province.

Provincial Hatcheries.—Ontario operates 17 hatcheries and rearing stations and excellent results have been produced in the culture and distribution of various species of game fish. The primary species reared in these operations include brook trout, rainbow trout, lake trout, smallmouth and largemouth bass, and maskinonge. Four of the finest trout-rearing stations on the Continent are located in this province—at Dorion near Port Arthur, Sault Ste. Marie, Hill Lake near Englehart, and Chatsworth.

Fisheries Research.—Research in Ontario is carried on in the Great Lakes and in inland waters. At the South Bay Mouth Station on Manitoulin Island in Lake Huron, Wheatley on Lake Erie, and Glenora on the Bay of Quinte on Lake Ontario, fishery biological stations are operated for the investigation and study of the commercial and sport fisheries on the respective lakes. In Algonquin Park, detailed studies concerning lake trout, smallmouth bass and brook trout are in progress and management techniques are being tested against the background of a creel census which has been continuous since 1936. Studies are also being conducted on walleyes, parasitology and limnology. A selective breeding experiment concerning the hybrid between lake trout and brook trout is progressing; the deep-swimming character of the lake trout and the character of maturity at early age of the brook trout are those being selected for combination in the hybrid. Co-operation by Ontario in the field of sea lamprey control is being extended through the Great Lakes Fishery Commission.

Manitoba.—Commercial fishing has been carried on in Manitoba since 1895. The province has almost 40,000 sq. miles of freshwater and 400 miles of coastline on Hudson Bay but, altogether, about 155 lakes and rivers, covering 22,000 sq. miles, are commercially fished. Some 3,500 persons are employed in primary commercial fishing and an equal number derive part of their living from fish processing and the supply of materials and services to the industry. The industry is particularly important to people living in remote northern communities where fishing provides a major part of their cash income but, even so, over two thirds of the catch is taken in the southern parts of the province. In 1963-64, Lake Winnipeg produced 10,428,000 lb., Lake Manitoba 7,561,000 lb., Lake Winnipegosis 5,656,000 lb., and other southern lakes 580,000 lb. The northern lakes produced 11,532,900 lb. The total value to the fishermen in 1963-64 was \$4,356,000 and the value as marketed was \$7,429,000. The average annual marketed catch for the past five years was 33,100,000 lb. worth \$3,900,000 to the fishermen and \$6,700,000 at the wholesale level after processing. About half the catch is taken during open water and the remainder through the ice in winter.

There are 15 kinds of fish caught commercially in Manitoba but those of highest annual value to the fishermen are pickerel, whitefish, sauger and pike. Over 90 p.c. of the catch is exported, mostly to the United States. A quantity of the less valuable kinds and some processing waste are used as food on mink ranches and for the making of meal; a small industry to process white whales (beluga) for oil and animal food has been established on Hudson Bay. Capital investment in gear, boats, warehouses, etc., approaches \$6,000,000.

Supervision of commercial fishing operations and the enforcement of the Manitoba Fishery Regulations occupy a staff of Conservation Officers who patrol the province using diesel boats during the open water season, snowmobiles and light trucks during the winter and aircraft in remote areas. The Fisheries Branch of the Department of Mines and Resources, in co-operation with the Department of Health, conducts a systematic program of plant inspection to raise the standard of sanitation and improve the processed product.

A continuing program of biological research is conducted by the Fisheries Branch to provide management information in the interest of a sustained annual yield and a program has been established to test and prove new improved netting and gear which will increase production and lower operating costs. Close liaison is maintained with the federal Department of Fisheries and the Fisheries Research Board in the effort to develop new fish products and effect more complete utilization of the province's fishery resources.

Fish culture activities include two pickerel hatcheries (Lake Manitoba and Lake Winnipegosis), a whitefish hatchery (Lake Winnipeg), a trout hatchery (Whiteshell Provincial Park) and two spawn-taking camps. Fish to replenish the commercial fishing waters are raised in the pickerel and whitefish hatcheries and several kinds of trout as well as splake and sockeye salmon are raised in the Whiteshell hatchery to be planted in sport fishing waters.

Sport Fisheries.—Angling continues to be one of the most popular and most rapidly growing forms of outdoor recreation in Manitoba, and since ice-fishing has come into vogue

many anglers are now fishing over the entire year. About 100,000 licensed fishermen, 15,000 of them from outside the province, spent an estimated \$11,000,000 in pursuit of this sport. Although their catch of about 5,000,000 lb. a year is considerably less than the commercial fishing yield, the monetary value to the province of the sport fisheries is higher. Extensive water areas are reserved for sport fishing only but others are managed for both types of use. Walleye (pickerel), northern pike and the various trout species are the main species taken. Either or both of the first two species occur in nearly every body of water in the province but trout require a more specialized habitat and occur only in select lakes and rivers.

Saskatchewan.—Approximately 32,000 sq. miles of water, about one eighth of the province's area, provide the basis for Saskatchewan's fishery resource, a resource that contributes much to the economic and recreational activity of the province. Administration of the fisheries is the responsibility of the Fisheries Branch of the Department of Natural Resources which has, at Prince Albert, five main divisions—Commercial Fisheries; Sport Fisheries; Research; Spawn Camp; and Fish Culture Station. The Branch plans policies and develops programs that will ensure the proper management and utilization of the fishery resource; interprets and explains policies, programs and regulations to the public; administers the Acts and Regulations, both federal and provincial; and adapts regulations to meet changing conditions. Its objective is to encourage efficient multi-use of the fishery, taking into consideration the interests of the various groups concerned—anglers, commercial fishermen, mink ranchers and the public generally.

The commercial catch in Saskatchewan averages about 14,500,000 lb. annually and consists mainly of whitefish and lake trout. In 1963 the total catch of 14,089,000 lb. had a gross value of \$2,710,000 from which the fishermen received \$1,300,000 on the lake. This was a slight decline from the previous year, a result of the botulism scare in the United States which adversely affected the whitefish market. Eighteen local fishermen co-operatives, with approximately 1,200 licensed fishermen (66 p.c. of the total), marketed 6,547,000 lb. of Saskatchewan's commercial production (46 p.c. of the total). During the year, 545 free Indian fishing permits and 1,016 domestic fishing licences were issued, resulting in a catch of about 1,400,000 lb. of fish, all species; the 60 mink ranchers licensed to fish for 8,637 mink breeders had an estimated production of 4,796,000 lb. of rough fish (suckers, burbot and ciscoes).

The Fish Research Division provides information for the development of fisheries management policies and programs. Study projects are conducted to determine productivity of water bodies; to secure information on abundance and relationship of fish species; to investigate ecology and assess factors that may affect environments of fish; to develop techniques with a view to achieving maximum harvest of fish populations without prejudice to continued production; and to develop techniques that will facilitate rehabilitation and stocking of small water bodies. Eleven research projects were undertaken during 1964 and work on eight lakes was completed. Limnological and fisheries surveys were continued on lakes along the highway from Lac la Ronge to the Churchill River on the Hanson Lake road and on provincial park lakes. The creel census project on Lac la Ronge was conducted for the 14th consecutive year. Spawn camps were operated at Lac la Ronge and Black Lake for the taking of lake trout, northern pike, walleye and Arctic grayling eggs. These, along with rainbow and eastern brook trout eggs secured from the United States, were incubated and hatched at the Fish Culture Station at Fort Qu'Appelle. Seventy-four water bodies were stocked with more than 30,000,000 fry, fingerling, yearling and adult-size fish. The heaviest fry stocking took place at Tobin Lake (Squaw Rapids Reservoir), where 7,000,000 walleye and 410,000 northern pike were released.

Sport Fisheries.—One of the leading outdoor recreational activities in Saskatchewan is angling. During 1963-64, 93,694 angling licences were sold, bringing in a total revenue of \$246,162; 82,971 of the angling licences were sold to residents of the province.

Alberta.—Commercial and game fishing is administered by the Fish and Wildlife Division of the Department of Lands and Forests under authority of the Fisheries Act (Canada) and the Fishery Act (Alberta).

The output of commercially caught fish in Alberta's 6,485 sq. miles of freshwater fluctuates considerably from year to year. Total production in 1963-64 amounted to 8,900,012 lb., which yielded the fishermen \$703,667 and had a marketed value of \$1,174,477. Whitefish is by far the most valuable of the commercial species taken, accounting in 1963-64 for 48 p.c. of the total value but only 24 p.c. of the quantity. By quantity, tullibee, a low-priced animal food fish, is in first place, accounting for 48 p.c. of the total but only 22 p.c. of the marketed value. Other important species taken in 1963-64, in order of marketed value, were pickerel, pike, perch and lake trout. Of the total quantity taken, 1,898,015 lb. were marketed outside the province, 1,525,160 lb. in the United States.

Sport fishing is particularly popular in the lakes and rivers throughout the province. In 1963-64, 129,244 angling licences were issued, continuing the high level of the past seven or eight years. The provincial fish culture and stocking program is aimed at keeping these waters prolific. During 1963-64, the Calgary hatchery and the Raven rearing station produced 2,401,000 trout, grayling and kokanee for stocking purposes and the majority of plantings were made in lakes and reservoirs throughout the settled areas. In addition, 3,653,000 walleye eggs, 550 adult pike and 60,750 perch were introduced into selected lakes.

Research into the survival of hatchery trout in streams was continued at the Alberta Biological Station at Gorge Creek, supplemented by investigations on recovery by anglers of stream-stocked trout at Jumping Pound creek. Continued evaluation of lake management practices was carried out through three fisheries checking stations, and biological surveys and management projects were conducted at fifteen lakes, rivers or creeks.

British Columbia.—A Fisheries Office, which was organized in 1901-02 and became very active in fish culture work, building and operating fish hatcheries and instituting scientific research into various fishery problems, was superseded in 1947 by the Department of Fisheries which in turn was superseded in 1957 by the Department of Recreation and Conservation. Commercial fisheries are represented today as the Commercial Fisheries Branch of the Department of Recreation and Conservation. Broadly speaking, the administrative and regulatory jurisdiction over the fisheries of British Columbia rests with the federal authority. The ownership of the fisheries in the non-tidal waters is vested in the Crown in the right of the province, as are the shell fisheries such as oyster fishing and clam fishing in tidal waters. The province administers these fisheries although the regulations covering them are made under federal Order in Council on the advice and recommendation of the province.

The provincial Fisheries Act provides for the taxation of the fisheries and, under civil and property rights, for the regulation and control of the various fish processing plants under a system of licensing. Provision is also made for arbitration of disputes regarding fish prices that may arise between the fishermen and operators of the various licensed plants. The administration of the Act involves the collection of revenue and the supervision of plant operations.

Regulation and administration of net fishing in the non-tidal waters of the province, including commercial fishing and authority for regulation of the game fisheries in non-tidal waters, is vested in the Fish and Game Branch which operates a number of trout hatcheries and egg-taking stations for re-stocking purposes.

The Branch co-operates closely with the Fisheries Research Board of Canada. The biological research into those species of shellfish over which the province has control,

principally oysters and clams as well as marine plants, is conducted by the Fisheries Research Board of Canada at the Pacific Biological Station, Nanaimo, B.C., under agreement with the federal and provincial authorities. The object of this research is to encourage the industry to produce better products more economically and to enable the Commercial Fisheries Branch to regulate the various species so that maximum exploitation may be obtained on a sustained-yield basis.

Section 3.—Fishery Statistics

The review of commercial fishing and marketing given in Section 1, pp. 608-611, covers the situation in 1964 and contains estimated figures for that year. However, at the time of the preparation of this Chapter, the latest statistics available in detail for both the primary industry and fish products were those for 1963 contained in the following Subsections.

Subsection 1.—Primary Production

The value of the 1963 catch of fish on the Atlantic Coast was at a very high level; it amounted to \$76,608,000, an increase of 12 p.c. over the 1962 value of \$68,373,000 and 39 p.c. over the ten-year 1953-62 average of \$55,072,000. The lobster catch was somewhat lighter in 1963 than in the previous year but was still the most valuable at \$21,281,000; cod was second at \$20,998,000.

For the second consecutive year, the value of the catch by Newfoundland fishermen was substantially higher than that of the previous year. The value of landings of all species amounted to \$20,429,000, of which cod accounted for \$12,944,000. Cod landings at 402,926,000 lb. were much heavier than in 1962, as were those of redfish and flounders and soles, but haddock dropped sharply from 38,883,000 lb. in 1962 to 13,323,000 lb. in 1963.

The value of all landings by Nova Scotia fishermen in 1963 was \$36,644,000, a record level 14 p.c. above 1962. Lobsters and scallops continued to be the most important species from the standpoint of income to the fishermen, having a landed value of \$10,746,000 and \$6,178,000, respectively. Cod was third at \$4,300,000, followed by haddock, swordfish, flounders and soles, halibut and pollock. New Brunswick fishermen also landed a more valuable catch in 1963 than in 1962, although the increase was not so spectacular. Lobsters, herring and cod were the major sources of income to the fishermen, accounting for \$7,085,000 of the total value of \$9,353,000. The herring catch, which fluctuates widely from year to year, was 133,111,000 lb. in 1963 compared with the five-year 1958-62 average of 98,473,000 lb. Returns to Prince Edward Island fishermen in 1963 were \$4,630,000, slightly below the 1962 level. Lobsters, at \$3,156,000, made up 68 p.c. of the total and oysters, at \$385,000, were next in importance. The 1963 oyster landings were the highest since 1950. The value of Quebec landings in 1963 was up slightly from 1962. A decrease in the value of cod taken was more than offset by increases for other species such as lobsters, herring and plaice.

The value of British Columbia landings in 1963 was \$40,466,000, down considerably from the 1962 value of \$49,067,000. With salmon making up over half the total, the annual fluctuations in the volume of salmon species taken materially affect the total value of the catch. Landings of all species of salmon in 1963 amounted to 119,324,000 lb. compared with 163,907,000 lb. in the previous season. Chums, pinks, cohoes and sockeye were all down. Herring landings on the other hand were 28 p.c. higher and had a value of \$6,477,000. Halibut was also higher but lower unit values resulted in a decrease in value from \$10,912,000 to \$8,249,000. The 1963 catch of tuna at 32,000 lb. was disappointing after the record catch of 487,000 lb. in 1962.

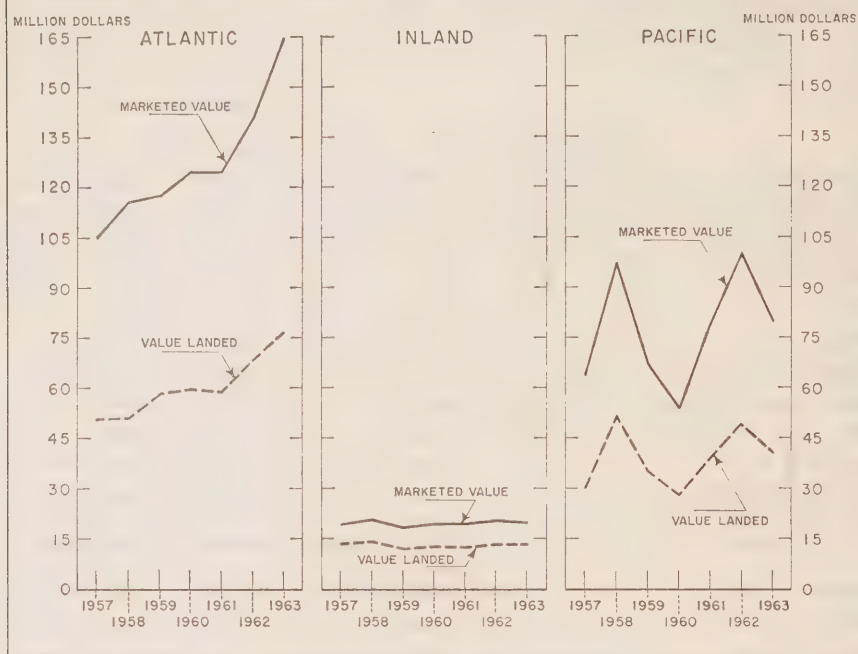
1.—Quantity and Value of Sea and Inland Fish Landed, by Province, 1959-63

NOTE.—Figures for the years 1918-58 are given in the corresponding table of previous Year Books beginning with the 1947 edition.

Province or Territory	1959	1960	1961	1962	1963
QUANTITY					
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.
Newfoundland.....	562,228	573,771	503,079	549,341	594,961
Prince Edward Island.....	42,025	42,283	36,664	37,630	38,462
Nova Scotia.....	423,273	430,310	439,662	435,903	429,016
New Brunswick.....	227,994	232,662	147,925	204,511	234,888
Quebec.....	112,954	98,851	109,174	133,443	132,773
Ontario.....	48,984	47,600	54,951	63,780	54,342
Manitoba.....	31,052	31,944	30,658	36,105	35,758
Saskatchewan.....	12,550	14,530	14,515	14,999	14,089
Alberta.....	12,664	15,852	11,317	9,025	8,509
British Columbia.....	613,597	335,040	635,550	686,918 ¹	772,859 ¹
Northwest Territories.....	5,747	5,543	5,676	6,544	6,347
Totals.....	2,093,068	1,828,386	1,989,171	2,178,199	2,332,004
Sea Fish.....	1,975,856	1,705,362	1,866,098	2,041,168	2,198,157
Inland Fish.....	117,212	123,024	123,073	137,031	123,847
VALUE					
	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	14,529	15,856	14,922	17,454	20,429
Prince Edward Island.....	4,287	4,640	4,489	4,649	4,630
Nova Scotia.....	27,112	26,094	27,741	32,062	36,644
New Brunswick.....	8,763	9,358	7,730	9,222	9,353
Quebec.....	4,316	4,504	4,710	5,710	6,223
Ontario.....	4,866	4,983	5,745	5,341	5,504
Manitoba.....	3,757	3,867	3,174	4,229	4,356
Saskatchewan.....	1,190	1,367	1,385	1,478	1,299
Alberta.....	1,016	1,159	883	714	676
British Columbia.....	34,995	27,961	38,778	49,067 ¹	40,466 ¹
Northwest Territories.....	703	702	675	859	796
Totals.....	105,534	100,491	110,232	130,785	130,376
Sea Fish.....	93,431	87,725	97,782	117,440	117,074
Inland Fish.....	12,103	12,766	12,450	13,345	13,302

¹ Includes halibut landed in United States ports.

LANDED AND MARKETED VALUE OF COMMERCIAL FISH 1957-63



2.—Quantity and Value Landed and Marketed Value of the Chief Commercial Fish, by Selected Species, 1962 and 1963

Area and Species	Quantity Landed ¹		Value Landed ²		Marketed Value of Products ²	
	1962	1963	1962	1963	1962	1963
	'000 lb.	'000 lb.	\$'000	\$'000	\$'000	\$'000
Atlantic Coast						
Groundfish	963,099	1,002,821	32,887	36,383	77,638	91,156
Catfish.....	3,333	2,958	102	94	397	298
Cod.....	585,386	609,722	18,904	20,998	39,875	47,819
Flounder and sole.....	103,507	127,349	3,323	4,089	7,845	10,448
Haddock.....	115,021	90,911	4,869	4,916	11,769	12,385
Hake.....	18,828	17,939	452	505	619	822
Halibut.....	6,104	4,926	1,776	1,604	1,957	2,106
Pollock.....	60,810	57,134	1,656	1,734	2,936	4,392
Redfish.....	61,114	83,274	1,585	2,221	4,208	5,308
Other.....	8,996	8,608	220	222	8,032	7,578
Pelagic and Estuarial	296,837	318,878	8,251	9,528	25,785	26,067
Alewives.....	10,626	11,320	177	181	345	272
Herring.....	246,502	252,702	3,430	3,086	7,574	6,506
Mackerel.....	16,197	17,200	663	706	1,298	1,485
Salmon.....	3,776	4,052	1,752	1,832	2,309	2,662
Sardines.....	3	3	1	1	11,040	9,850
Smelts.....	2,635	3,148	240	232	299	343
Swordfish.....	3,495	14,458	1,580	2,975	2,052	3,819
Other.....	13,636	15,998	419	516	868	1,130

For footnotes, see end of table.

2.—Quantity and Value Landed and Marketed Value of the Chief Commercial Fish, by Selected Species, 1962 and 1963—concluded

Area and Species	Quantity Landed ¹		Value Landed ²		Marketed Value of Products ²	
	1962	1963	1962	1963	1962	1963
	'000 lb.	'000 lb.	\$'000	\$'000	\$'000	\$'000
Atlantic Coast—concluded						
Molluscs and Crustaceans	68,814	73,605	21,875	28,293	31,126	43,143
Clams—						
Quahaugs.....	296	423	13	24	16	35
Soft-shelled.....	3,168	2,196	146	112	178	229
Lobsters.....	46,452	44,373	19,781	21,281	23,018	31,887
Oysters.....	3,259	4,286	356	481	541	614
Scallops.....	13,481	16,217	4,524	6,256	6,933	9,960
Other.....	2,158	6,110	55	139	440	418
Other.....	...	...	2,360	2,404	6,089	4,197
Totals, Atlantic Coast.....	...	...	68,373	76,608	140,638	164,563
Pacific Coast						
Groundfish	51,822	54,671	12,214	9,556	14,343	12,678
Cod.....	4,489	6,756	254	411	405	705
Halibut.....	34,576	37,274	10,912	8,249	12,457	10,541
Ling cod.....	4,308	3,238	469	379	561	517
Sablefish.....	620	597	109	104	173	163
Sole.....	6,286	5,686	395	359	584	643
Other.....	1,543	1,120	75	51	163	109
Pelagic and Estuarial	618,902	696,895	35,652	29,453	80,791	62,331
Herring.....	445,275	572,202	4,752	6,477	8,492	11,695
Salmon.....	163,907	119,324	30,559	22,790	69,763	48,853
Chum.....	18,047	15,414	2,196	1,969	6,493	4,366
Coho.....	24,146	23,071	6,900	6,658	12,187	11,377
Pink.....	93,214	59,699	10,909	6,073	30,646	18,550
Sockeye.....	20,077	11,853	6,723	4,034	15,444	8,499
Spring.....	8,183	9,142	3,774	4,020	6,146	5,435
Other.....	240	145	67	36	847	626
Other.....	9,720	5,369	341	186	2,536	1,783
Molluscs and Crustaceans	16,023	21,124	1,181	1,429	2,499	2,729
Clams, butter, little neck, razor, etc.....	3,964	3,147	139	103	448	340
Crabs.....	2,771	3,405	302	405	945	1,000
Oysters.....	7,587	12,768	466	635	608	781
Shrimps and prawns.....	1,663	1,788	268	284	470	573
Other.....	38	16	6	2	28	35
Other.....	...	...	20	54	2,423	2,266
Totals, Pacific Coast.....	...	...	49,067	40,492	100,056	80,004
Inland						
Freshwater Fish	112,926	110,241	12,358	12,643	19,218	18,878
Bass.....	2,491	1,997	278	277	312	311
Catfish.....	1,223	1,512	201	239	217	260
Herring, lake (cisco).....	2,630	2,375	68	78	77	88
Perch.....	22,598	19,488	1,412	1,504	1,620	1,728
Pickarel (yellow).....	14,959	16,115	3,226	3,713	5,128	5,283
Pike.....	9,065	8,357	480	409	1,249	1,098
Saugers.....	3,797	5,406	791	1,172	1,320	1,790
Sturgeon.....	514	394	285	234	304	260
Trout.....	4,065	3,517	599	470	1,040	887
Tullibee.....	8,333	8,160	686	623	831	769
Whitefish.....	26,578	25,279	3,817	3,389	6,358	5,580
Other.....	16,672	17,641	515	526	762	824
Other	24,105	13,606	987	659	1,074	713
Totals, Inland	137,031	123,847	13,345	13,302	20,292	19,591
Grand Totals.....	...	...	130,785	130,402	260,986	264,158

¹ Excludes livers.² Includes value of livers and liver products.² Included with "Herring".⁴ Includes landings by Canadian fishermen in United States ports.

3.—Persons Employed in the Primary Fishing Industry, by Province, 1961-63

Province or Territory	Sea Fisheries			Inland Fisheries		
	1961	1962	1963	1961	1962	1963
	No.	No.	No.	No.	No.	No.
Newfoundland.....	18,756	19,817	21,407	—	—	—
Prince Edward Island.....	3,464	3,367	3,372	—	—	—
Nova Scotia.....	12,578	12,711 ¹	13,467	—	—	—
New Brunswick.....	6,083	6,016	5,833	145	157	144
Quebec.....	3,771	3,786	3,674	1,173	1,031	658
Ontario.....	—	—	—	3,059	2,993	3,271
Manitoba.....	—	—	—	5,018	5,614	5,837
Saskatchewan.....	—	—	—	1,750	1,850	1,827
Alberta.....	—	—	—	5,422	4,563	5,117
British Columbia.....	16,805	16,437	16,624	—	—	—
Northwest Territories.....	—	—	—	336	476	451
Totals.....	61,457	62,134¹	64,377	16,903	16,684	17,305

Subsection 2.—Fish Products

According to commodity surveys conducted by the Dominion Bureau of Statistics, the value of sea and inland fish products produced at all industrial levels, including the value to fishermen, amounted to \$264,158,000 in 1963; this was an increase of 1 p.c. over 1962 and the highest amount on record. Most of the increase over 1962 took place in the Atlantic Provinces.

4.—Value of All Products of the Fisheries, by Province, 1959-63

NOTE.—Figures for the years 1917-58 are given in the corresponding table of previous Year Books beginning with the 1922-23 edition. Totals for five-year intervals from 1870 are given in the 1956 edition, p. 597.

Province or Territory	1959	1960	1961	1962	1963
	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	31,675	33,783	33,119	38,883	43,793
Prince Edward Island.....	5,961	7,261	6,093	6,403	6,608
Nova Scotia.....	50,480	51,753	55,593	67,380	76,809
New Brunswick.....	28,367	33,130	26,386	33,087	33,356
Quebec.....	7,856	7,622	8,131	10,625	9,043
Ontario.....	5,475	5,606	6,464	6,009	6,192
Manitoba.....	6,689	7,035	6,214	7,979	7,563
Saskatchewan.....	2,596	2,830	3,166	3,115	2,710
Alberta.....	1,684	2,021	1,701	1,234	1,125
British Columbia.....	67,067	53,983	78,758	100,056 ¹	80,004 ¹
Northwest Territories.....	1,146	1,075	1,179	1,231	1,331
Totals².....	203,040	198,005	222,879	260,986	264,158
Sea Fish.....	184,879	178,750	203,568	240,694	244,567
Inland Fish.....	18,161	19,255	19,311	20,292	19,591

¹ Includes landings by Canadian fishermen in United States ports.

² Totals differ from the sum of provincial totals because duplications resulting from inter-shippments between provinces are removed.

The annual output of canned salmon fluctuates considerably with the extent of the catch, as is shown in Table 5. This product has long been the most important of the industry, but the demand for Atlantic Coast frozen groundfish fillets and blocks has been rising so rapidly that the value of these products now runs a close second. In fact, in 1960 and 1963, years of low canned salmon production, the value of the Atlantic products was in first place.

5.—Pacific Coast Production of Canned Salmon, 1961-63

Species	1961		1962		1963	
	Quantity	Value	Quantity	Value	Quantity	Value
	Cases ¹	\$'000	Cases ¹	\$'000	Cases ¹	\$'000
Chum.....	95,385	2,050	134,483	3,025	119,190	2,547
Coho.....	241,379	8,634	187,735	6,886	157,481	5,478
Pink.....	661,291	16,767	1,188,662	30,337	757,453	17,863
Sockeye.....	398,204	18,468	297,717	15,344	158,375	8,325
Spring.....	7,921	202	7,175	186	10,000	230
Steelhead.....	979	30	814	23	772	21
Totals.....	1,405,159	46,151	1,816,586	55,801	1,203,271	34,464

¹ 48 lb.

6.—Atlantic Coast Production of Frozen Fillets and Fish Blocks, 1961-63

Area and Species	1961		1962		1963	
	Quantity	Value	Quantity	Value	Quantity	Value
	'000 lb.	\$'000	'000 lb.	\$'000	'000 lb.	\$'000
Newfoundland.....	64,009	14,445	72,179	16,780	77,827	18,897
Cod.....	38,309	7,967	41,801	9,136	47,359	11,050
Haddock.....	11,129	2,619	11,499	2,769	4,225	1,229
Redfish.....	6,976	1,592	9,851	2,342	13,093	2,920
Flatfish.....	6,992	2,131	8,105	2,236	12,016	3,444
Other.....	603	136	923	207	1,134	254
Maritimes.....	75,940	17,870	77,978	19,550	81,334	19,920
Cod.....	25,989	5,522	32,457	7,253	30,202	6,630
Haddock.....	19,885	5,468	16,743	5,088	18,010	5,361
Redfish.....	6,423	1,400	4,260	1,397	6,501	1,614
Flatfish.....	13,355	3,778	12,414	3,828	13,820	4,206
Other.....	10,288	1,702	12,104	1,984	12,801	2,109
Quebec.....	14,012	2,909	15,659	3,080	16,442	3,482
Cod.....	10,415	2,102	12,238	2,360	12,010	2,416
Other.....	3,597	807	3,421	720	4,432	1,066
Totals, Atlantic Coast.....	153,961	35,224	165,816	39,410	175,603	42,300
Cod.....	74,713	15,591	86,496	18,749	89,571	20,096
Haddock.....	31,119	8,112	28,358	7,883	22,461	6,644
Redfish.....	15,327	3,367	16,079	4,106	22,059	5,069
Flatfish.....	21,750	6,274	21,725	6,461	27,439	8,086
Other.....	11,052	1,880	13,153	2,211	14,073	2,405

PART II.—FURS

Section 1.—The Fur Industry*

The value of raw furs produced in Canada in the season 1963-64 amounted to \$35,259,426, or slightly less than one tenth of the value of world production of this commodity; Canada produces around one twelfth of the total world value of ranched mink pelts and about one quarter of the world's wild furs. Canadian raw fur production is therefore very important in the world fur industry.

* Prepared by A. Stewart, Production and Marketing Branch, Canada Department of Agriculture, Ottawa.

A large proportion of the Canadian raw fur output is exported, the principal varieties being mink, beaver, seal and muskrat; the value of raw furs exported in the 1963-64 season was \$30,159,312. During the same period, raw furs worth \$21,509,586 were imported, such imports consisting mainly of mink, Persian lamb, fox and muskrat.

Fur Trapping.—Despite a long period of intensive trapping, the numbers of wild fur bearers in Canada have been well maintained and production of many varieties is greater now than in 1919 when fur statistics were commenced. Some species have adjusted to life in partly settled areas and each year substantial catches of beaver, muskrat, mink, raccoon, squirrel and wolf are made in areas of mixed farm and bush land. However, for lynx, marten, fisher, otter and other wilderness varieties, the northward advance of settlement has moved back the frontier so that the principal trapping grounds now lie in the northern portions of the provinces and in the Northwest Territories. Of prime importance in maintaining the numbers of fur bearers have been the conservation and management policies instituted by the federal and provincial governments which include the establishment of wildlife preserves, parks and sanctuaries. The length of the trapping period is controlled and, where necessary, closed seasons are imposed for the protection of scarce species.

An estimated 50,000 Canadians participate annually in fur trapping activities which in recent seasons have yielded an average revenue of approximately \$12,000,000. With the exception, mainly, of native Indians and Eskimos in the more remote northern areas, few trappers now depend solely on trapline earnings for their livelihood. The modern trapper usually is a full-time or part-time wage-earner who carries on his trapping activities during weekends or off seasons. The reason for the decline in the popularity of fur trapping as a full-time occupation lies in the economics of the industry wherein returns from the trapping operation have not kept pace with rising commodity prices. The average prices realized for most of the principal varieties of wild furs were higher during the period 1920-30 than in the late 1950's and early 1960's; this, without taking into account the decreased purchasing power of the dollar since that time. Reasons for the failure of the fur industry to grow with the economy are deep-seated and mainly beyond the power of the trapper to correct. During the 1950's a fashion swing toward short-haired furs, principally mink, resulted in a sharp decrease in the demand and consequently the prices realized for many of the previously important varieties such as lynx, fox and wolf. Returns for marten and for muskrat—the latter one of the bread-and-butter furs of trappers in all areas—also declined sharply during this period. However, the long-haired furs now appear to be staging a comeback; in the 1964-65 season there was a revival of demand for many of the neglected varieties and a corresponding improvement in returns accruing to the trapper.

Fur Farming.—Up to the end of the nineteenth century almost all Canadian furs were taken from the wilds. However, around 1890 the raising of fur bearing animals under domestic conditions was started and has since grown until, in the 1963-64 season, fur farm production accounted for 62.9 p.c. of the total value of Canadian fur production. The advantages of farm production include the ability to practise quality control and selective breeding. Also, the pelts of ranch-raised fur bearers may be harvested when both quality and colour are at their peak. Through trial and error it was found that some animals, notably fox, mink and chinchilla, adapted well to production in captivity.

Fox.—During the period from around 1890 until 1945, the raising of silver foxes on Canadian farms was a thriving industry, with production in the peak year of 1939 amounting to 240,827 pelts. After 1945, increasing world production coupled with the fashion swing away from long-haired furs weakened the market so that returns to producers were often lower than production costs and production fell off rapidly. In the 1963-64 season, 837 pelts were marketed by Canadian producers at the estimated average value per pelt of \$12.50. Ironically enough, in view of the comparatively small number of pelts available,

a strong demand developed during 1964 for silver and mutation fox furs. Price realizations reflected this interest and in recent fur auctions returns were the highest in almost twenty years. It remains to be seen whether this demand will be sustained.

Mink.—In 1963 the production of 1,390,139 mink pelts from 1,475 Canadian farms accounted for 99.1 p.c. of the value of fur farm production. This industry is carried on in all the provinces, the principal producers, in order of importance, being Ontario, British Columbia, Manitoba and Alberta. The following figures indicate the growth of the industry since 1930:—

Year	Pelt Production		Average Realization	Year	Pelt Production		Average Realization
	No.	\$			No.	\$	
1930.....	3,284	10.52		1955.....	786,760	20.07	
1935.....	30,558	10.58		1960.....	1,203,853	14.03	
1940.....	229,202	9.64		1961.....	1,271,449	14.50	
1945.....	255,968	21.51		1962.....	1,295,672	15.13	
1950.....	589,352	17.08		1963.....	1,390,139	15.82	

Initially, all ranched mink were brown or dark brown in colour, produced through crosses of various strains of wild mink. However, around 1936 the first colour mutation occurred—the Silverblue or Platinum, produced from conventional dark brown parents. This mutation was quickly followed by others and breeders soon learned to produce new exciting colours, so that today there exist more than 200 shades, including variations of basic colours. The wide range of natural colours available in mink has been a major factor in the continued popularity of this fur.

The raising of mink has developed into a specialized business. The successful rancher must have a thorough knowledge of his animals' habits and requirements. Mink must be fed a carefully prepared diet tailored to meet the varying demands of the breeding, growing and furring-out seasons. Also, a sound understanding of the complex field of genetics is required for selective breeding programs through which new shades may be produced and breeding herds improved. Most of the pelts produced today are far superior in size, colour and quality to those produced in the early days of the industry. Diseases of mink have been the subject of considerable research at universities and at the Canada Department of Agriculture Experimental Fur Farm at Summerside, P.E.I. As a result of findings, most mink farmers carry out programs of preventive vaccination for control of the major diseases.

Although mink has long remained the dominant fur of the industry, steadily increasing world production of mink pelts has resulted, in recent years, in lower auction realizations. Improved ranching practices and the use of labour-saving devices have enabled producers to operate more efficiently and have helped to mitigate the worst effects of the profit squeeze occasioned by reduced returns and rising costs of operation. On early mink farms the mink were raised in individual pens in the open. Feed and water had to be carried to the mink and this limited to around 300 the number of animals that could be cared for by one operator. Today mink are raised in roofed structures with more or less open sides, housing up to several thousand animals each, and most modern operations use automatic watering and powered feeding systems.

Most Canadian mink ranchers are members of the Canada Mink Breeders' Association, which promotes Canadian ranched mink in the domestic and foreign markets and works closely with fur auction outlets in formulating plans for marketing the annual pelt crop. Funds for advertising and for promotional undertakings are obtained through a deduction of 1½ p.c. of the sales price of all members' pelts sold at auction.

Chinchilla.—Chinchillas are being raised successfully in all provinces, the principal producers in 1963, in order of importance, being Ontario, British Columbia, Alberta and Quebec. Although chinchillas adapt well to raising under domestic conditions, this is a

comparatively new industry and additional research is required on many aspects of the business. The following figures show the production of chinchilla pelts in Canada since 1954:—

Year	Pelt Production	Average Realization	Year	Pelt Production	Average Realization
	No.	\$		No.	\$
1954.....	1,460	23.45	1959.....	8,558	13.17
1955.....	1,742	27.50	1960.....	9,067	13.06
1956.....	2,705	9.65	1961.....	10,559	14.07
1957.....	4,701	13.84	1962.....	11,193	13.56
1958.....	8,336	13.43	1963.....	12,308	14.04

Fur Marketing.—Canadian furs are traditionally marketed in the raw state, being sold through competitive bidding in eight fur auction houses located in various parts of the country. Some Canadian ranched mink are also marketed in New York and substantial quantities of wild furs are sold in London, England. The fact that the pelts are sold raw, or unprocessed, facilitates their entry into the many countries that maintain tariffs on imports of dressed furs. Buyers from many countries attend the Canadian auctions, purchasing for their own accounts or acting as representatives of firms anywhere in the world. Recently there has been increasing participation in Canadian auctions by buyers from all the major European countries and their purchases of fine quality furs have contributed materially to the success of the fur auctions. However, the United States and Britain are the best customers for Canadian furs, although much of the merchandise taken by these countries is re-exported to unknown destinations (see p. 640).

Section 2.—Provincial and Territorial Fur Resource Management

Most of the fur resources of the provinces of Canada are under the administration of the respective provincial governments. Exceptions include those resources within the boundaries of the National Parks and the Indian reserves, and the fur resources of the Yukon and Northwest Territories, all of which are under the administration of the Federal Government. The Canadian Wildlife Service of the Department of Northern Affairs and National Resources is responsible for all Federal Government interests in wildlife resources except for those related to Indian affairs, which are administered by the Indian Affairs Branch of the Department of Citizenship and Immigration. The Canadian Wildlife Service co-operates with provincial governments and other agencies concerned and handles federal interests in relevant national and international problems (see pp. 33-34). Provincial fur resource management practices are discussed in the following paragraphs.

Newfoundland.—One of the most important steps taken recently by the Wildlife Division of the Newfoundland Department of Mines, Agriculture and Resources in fur resource management was the setting up of experimental beaver traplines on the Avalon and Burin Peninsulas. This system will be extended in 1965 to cover all fur bearers in other areas of the Island of Newfoundland. In the 1930's and 1940's beaver were transplanted from areas of high density to areas where there were few or no beaver and these transplants have resulted in fairly good beaver populations throughout most of the Island. The trapper is required to locate a minimum of five active beaver lodges before applying for permission to trap in trapline areas. His finds must be confirmed by a wildlife officer and he must trap according to regulations and agree to provide required information and certain organs for research purposes. This system has been quite successful in the seasons it has been in operation and it should eventually produce a relatively small number of trappers who will in effect be fur bearer managers, since the maintenance of a trapline will depend on the individual's care and attention to good management practices.

Generally, Newfoundland trapping regulations provide limited open seasons for most species. On the Island these include muskrat, otter, beaver and mink and in Labrador they

include beaver, mink, marten, muskrat, otter, fisher and Arctic fox. Trapping of other foxes, lynx and weasel is permitted throughout the year in the whole province and wolves and wolverines may be trapped throughout the year in Labrador.

It is interesting to note that the mink population on the Island has developed from fur farm escapes and is therefore concentrated in the fur farm areas of Avalon Peninsula, Springdale and Corner Brook. The first mink trapping season was declared in 1958.

Nova Scotia.—Nova Scotia's wild fur bearers include beaver, muskrat, mink, otter, fox, raccoon and weasel and the trapping of these animals provides supplementary income for several thousand persons who harvest from \$100,000 to \$200,000 worth of wild furs each year. The value, of course, depends on the numbers of each fur species available and on fur prices, both being subject to marked variations from year to year.

The beaver, once almost extinct in the province, is now the most valuable fur bearer taken. A \$2 licence is required by residents to trap a limited number of beavers (five to ten) during the approximately six-week season beginning Nov. 1. No licence is required to trap other fur bearers, although a royalty must be paid to the province for each pelt exported. These animals may be taken between Nov. 1 and Dec. 14.

Beaver research is at present being carried on in Nova Scotia to increase knowledge of this valuable animal as a preparation for better management of its population. Behaviour, feeding, movement and reproduction studies are being conducted near the Tobetic Sanctuary in western Nova Scotia, in Cumberland County in the eastern part of the province and in an enclosed area in Queens County. In addition, data on size, age, parasites and diseases are collected from beaver carcasses taken by trappers in all parts of the province.

Several trappers' associations have been started throughout the province so that the men closest to the fur resource may have some say in its wise use and management. These groups can also assist in ensuring proper handling and marketing of the raw furs and in up-grading quality, thus commanding good market prices.

New Brunswick.—A fur management program is now under way in New Brunswick. The first investigation concerns the muskrat and is being conducted in the estuary of the St. John River, one of the better muskrat areas in the province. For many years an open season on muskrat has been held in the spring. Management investigation will soon be extended to the beaver. This animal was protected against trapping for about 20 years until the first open season was declared in 1946. As a result, the beaver has made a remarkable recovery and there has been an open season each year since 1951, the annual take averaging about 7,500 pelts. It is now thought that, if heavier trapping is not done, there will soon be cause for concern over beaver damage to farms and woodlots, highways and railways.

The trapping of fisher and marten was permitted during the 1964-65 trapping season. These animals are found mainly in the northern part of the province but their numbers appear to be increasing and they are gradually working their way southward. Mink and otter are not abundant but in the two-month fall trapping season the catches average from 1,500 to 2,000 and from 200 to 250, respectively. In 1963-64, 3,279 trapping licences were issued.

Provincial legislation enables quick changes to be made in trapping seasons; thus, the autumn benefit of available fur may be utilized by a trapper or a closed season established on any fur bearer showing signs of serious depletion in numbers. A summary of trapping laws, which includes information on how the different pelts should be handled to receive the best price, is available from the Fish and Wildlife Branch of the Department of Lands and Mines.

Quebec.—The fur trade has been of considerable importance in Quebec since the beginning of New France and the province has remained in the forefront of fur producers. The principal native species, in order of importance, are beaver, mink, muskrat, hair-seal, otter, lynx and marten.

Management of wild fur bearers began in 1932 with the establishment by an official of the Hudson's Bay Company of a privately leased reserve at Rupert House. The administration of this reserve passed to the Hudson's Bay Company and a second concession, at Nottoway, was granted to the Company in 1938. Strict conservation practices were enforced in these two reserves with such success that the provincial government took over their management and has since added steadily to the area of Crown lands set aside for Indian trappers. At present, 12 reserves are under conservation: Rupert House, 7,500 sq. miles (1932); Nottoway, 11,300 sq. miles (1938); Vieux Comptoir, 30,000 sq. miles (1941); Peribonca, 12,600 sq. miles (1941); Fort George, 17,700 sq. miles (1942); Abitibi, 6,000 sq. miles (1943); Great Victoria Lake, 6,300 sq. miles (1948); Mistassini, 50,000 sq. miles (1948); Manouane, 5,000 sq. miles (1951); Roberval, 20,000 sq. miles (1951); Bersimis, 21,000 sq. miles (1951); and Saguenay, 140,000 sq. miles (1955). The number of beaver pelts alone taken from these reserves in the year ended Mar. 31, 1965 was 16,065, having a value of \$212,201.

In 1945, a separate system of registered lands for white trappers was set up in the areas of Abitibi East, Abitibi West, Rouyn-Noranda, Témiscamingue, Pontiac and part of Saguenay County. Each leaseholder is granted exclusive trapping rights on his assigned land and each is subject to strict regulation. The trapping of fur bearers, other than beaver, is not restricted on either the reserves or the registered lands except for a general regulation concerning the protection of animals and the fixing of catch limits. Recently, biological research has been undertaken to assess the results of this system.

In 1964-65, the value of the catch of wild furs in Quebec amounted to \$2,569,471—a fraction of the value of the finished product.

Ontario.—Legislation for the management of wild fur bearers had its beginning in Ontario with the setting of seasons in 1860 by an Act of Upper Canada. However, 32 years passed before there was any field staff to enforce the regulations and then began an era of restrictive legislation to protect species threatened by the earlier exploitation. Progress beyond the restrictive enforcement of open and closed seasons has come about only in the past 20 or 30 years. The first steps in this direction involved the setting aside of special Indian hunting areas in which non-Indians were not allowed to trap.

The registered trapline system was introduced in 1935 on a very small scale. This system is based on government recognition of the desirability of full utilization of the resource and the more efficient management that results when one individual enjoys the exclusive right to trap on such an area. In its early stages, surveyed townships were assigned as trapline areas but more explicit trapline boundaries, established in 1947-48, now cover the province and mostly follow natural physiographical features. At the same time, resident traplines were established in areas of patented land, which means most of southern Ontario; these are blocks of land on which trappers are licensed to trap, providing they make their own written agreements with the landowners. Trapline licences are renewable annually as long as the trapper meets the conditions of the regulations and continues to trap. Trappers may sell the equipment and improvements they have made on their lines and so have a vested interest in their traplines.

In full realization that fur is a natural resource that cannot in nature be stockpiled, and is harvested on a commercial basis only, the Ontario Department of Lands and Forests has assisted the Ontario Trappers' Association to establish their fur auction at North Bay. This allows the trappers to sell furs on a competitive market and realize their full value.

Much valuable research has been carried out on fur bearers, with present emphasis on beaver and otter. Transplantings have been successfully carried out to speed the recovery of reduced populations, particularly with beaver. A new aging technique was perfected for beaver in 1964 and an aerial beaver survey technique was developed recently.

Manitoba.—Trading in furs is Manitoba's oldest industry and the province produces some of the finest pelts on the world markets. The annual value of production varies widely, depending both on the cyclic abundance of fur bearing animals and on world prices for the pelts produced.

As the northern portion of Manitoba became more accessible following construction of the Hudson Bay Railway to Churchill, competition for fur and for trapping grounds became so severe that the fur resources were sadly depleted. In 1940, Manitoba started a program of trapline registration. The program provided security of tenure to individuals or community groups of trappers, weeded out the part-time trappers and changed harvesting of wild fur from fur mining to wild fur farming. At that time beaver were a rarity and a series of closed seasons had been declared. Since then, beaver have increased steadily and 53,963 pelts were harvested in the 1963-64 season. Within the past decade new records in the production of muskrat, beaver, mink, lynx, fisher and otter have been set for this century.

The wild fur industry is still of economic importance in the province, and particularly so for northern residents, both white and native. A program of trapper education, inaugurated in 1957 and designed to improve the general handling of furs by trappers and at the same time achieve a certain measure of standardization in pelt care, has shown gratifying results. It has been expanded to include improved trapping methods and the use of humane trap sets; a booklet, *The Trapper's Guide*, is available from the Wildlife Branch of the Department of Mines and Natural Resources.

Manitoba has been working in close co-operation with federal and other provincial agencies in the promotion of quality furs by contributing a collection of representative wild furs for exhibit at the more important European fairs.

Saskatchewan.—Before the introduction of Saskatchewan's fur conservation and development program, little was done to control the trapping of beaver and muskrat. During open seasons, trappers took every pelt available and then the season had to be closed the following year in hope of natural population build-up. This "feast and famine" policy had a disastrous effect on both the fur resources and the livelihood of trappers. Few trappers had exclusive rights to specific areas and most of them were unable to establish permanent homes in communities. Poaching was common practice and there was little economic security. Beaver began declining steadily after World War I and this affected the habitat for other fur bearers as well.

In 1944, the Saskatchewan Government set up a committee to study trapping problems and the following year the South Saskatchewan Muskrat Trapping Program was instituted. Under this plan, individuals received exclusive rights to trap on definite land locations. Owners and occupants received first consideration, with special priority given to Indians and metis on Crown lands. Muskrat quotas were established to assure continuing populations, and marketing of pelts under government supervision was instituted.

In 1946, under federal-provincial agreement, all Crown lands north of the 53rd parallel were set up as the Northern Fur Conservation Block. Up to \$50,000 a year was to be expended over the following ten years to establish and administer conservation areas, purchase equipment, pay salaries of personnel, transplant live beaver and build dams; the Federal Government agreed to assume 60 p.c. of the cost and the province the remainder. A Fur Advisory Committee, with representation from the provincial Department of Natural Resources and the federal Indian Affairs Branch was set up to supervise the program. Organization of conservation areas was left to the trappers. Five-man councils were elected in all districts, with Indian, metis and white trappers sharing privileges, obligations and responsibilities on an equal basis. Conservation measures and licensing regulations were initiated. In 1956 the agreement was extended for another ten years with minor changes and in 1962 a co-ordinating body was set up by the Fur Advisory Committee to promote better communications and understanding of the fur program.

Under the present fur program, security of trappers has been strengthened; fur bearer population, although still fluctuating to some extent, has through management reached a higher general level, particularly of beaver which is the most important fur animal, rivalled only by wild mink; quotas have put trapping on a sustained-yield basis; poaching has been almost eliminated; higher water levels resulting from the comeback of beaver have improved the habitat for other wildlife; and Indian and non-Indian trappers are sharing alike in the self-government of trapping areas and in fur management policies and programs.

Alberta.—Meetings under the auspices of the Fish and Wildlife Division of the provincial Department of Lands and Forests are held with trappers to advise them of improved methods of trapping and to help alleviate problems in trapping that arise from time to time. Studies are made by the biological staff of the Division regarding fur bearing animals, their habits and their habitat, and knowledge gained from these studies is passed on to the trapper. Pamphlets are distributed to trappers showing how and where to set traps, how to pelt the different fur bearing animals, and regulations in force. The Alberta Government submits pelts to the main fur exhibits in Canada and Europe, a policy that has increased the interest of foreign buyers in Alberta furs.

Several legislative measures have been taken in the past few years. The spring beaver season has been shortened, as a result of which Alberta has been marketing a higher grade pelt. Investigations have shown that beaver pelts coming on prime bring a higher price than pelts going off prime and the main reason for this legislation was to persuade trappers to trap beaver in winter when pelts are at their best. After protection for several years, a season on otter was established in 1964-65 on certain registered trapping areas. It is interesting to note that the number of otter pelts marketed with the open season was no larger than the number accidentally trapped previously. From this limited information it can be assumed that the otter population has not increased to any great extent. The prohibiting of mismanagement of registered trapping areas by holders, although only recently introduced, has had the effect of greatly increasing activity in trapping—areas have been taken away from persons holding them for investment and given to persons willing and able to trap, and borderline trappers have been forced to put more effort into trapping. It should be stated that the present high price of pelts has helped to make this legislation effective.

British Columbia.—The British Columbia wild fur resource is administered by the Fish and Game Branch of the Department of Recreation and Conservation. Regulations are derived under authority of the Game Act and resource use is controlled under the registered trapline system, in effect since 1926. Registered traplines are areas of Crown land allotted, for the purpose of trapping wild fur, to trappers who are resident in the province. Registration of a specific trapline is renewable on an annual basis by the trapper, subject to certain requirements of tenure aimed at conservation and sustained yield of fur species. Approximately 3,000 trappers are involved in provincial wild fur production, of whom one half are Indians.

The market value of wild fur produced during the fur harvest of 1963-64 was \$763,562, beaver comprising 47 p.c., lynx 13 p.c. and wild mink 15 p.c. Pelts of muskrat, otter, marten, fisher, squirrel and weasel made up the remainder. The 1963-64 beaver harvest was the highest since 1923, numbering 26,638 pelts.

Legislative measures entail a general shortening of the annual trapping season to restrict the harvesting of unseasonable pelts. Administrative emphasis is placed on the desirability of increasing the market value of the resource through improved pelt quality. The Branch is a member of the Canadian Fur Council.

Section 3.—Fur Statistics

Subsection 1.—Fur Production and Trade*

Total Fur Production.—Early records of raw fur production were confined to the decennial censuses when account was taken of the number and value of pelts obtained by trappers. In 1920 the Dominion Bureau of Statistics commenced an annual survey of raw fur production. For a number of years the statistics were based on information supplied by the licensed fur trappers. More recently, annual statements based on royalties, export tax, etc., have been made available by the provincial game departments (except Prince Edward Island), and these statements are used in the preparation of the statistics issued annually by the Bureau. Figures for Prince Edward Island are based on returns supplied to the Dominion Bureau of Statistics by fur dealers in that province.

1.—Pelts of Fur Bearing Animals Produced and Percentage Sold from Fur Farms, Years Ended June 30, 1945-64

Year Ended June 30—	Pelts		Percentage of Value Sold from Fur Farms	Year Ended June 30—	Pelts		Percentage of Value Sold from Fur Farms
	Number	Value			Number	Value	
		\$				\$	
1945.....	6,994,686	31,001,456	31	1955.....	9,670,796	30,509,515	43
1946.....	7,593,416	43,870,541	30	1956.....	7,727,264	28,051,746	56
1947.....	7,486,914	26,349,997	37	1957.....	6,919,724	25,592,130	57
1948.....	7,952,146	32,232,992	37	1958.....	6,440,319	26,335,109	60
1949.....	9,902,790	22,899,882	33	1959.....	5,370,531	25,800,555	62
1950.....	7,377,491	23,184,033	34	1960.....	5,999,414	31,186,078	60
1951.....	7,479,272	31,134,400	36	1961.....	6,237,360	28,737,087	59
1952.....	7,931,742	24,215,061	42	1962.....	5,771,129	28,971,077	64
1953.....	7,568,865	23,349,680	43	1963 ^r	5,123,395	31,943,418	62
1954.....	6,274,727	19,287,522	49	1964.....	4,562,768	35,259,426	63

Ontario continues to lead the provinces in value of fur production, accounting for 31 p.c. of the total in the 1963-64 season. British Columbia followed with 15 p.c., Manitoba with 14 p.c., Alberta 13 p.c., Quebec 10 p.c., Saskatchewan 6 p.c., the Atlantic Provinces 7 p.c., and the Yukon and Northwest Territories 4 p.c.

* Prepared by the Agriculture Division, Dominion Bureau of Statistics.

2.—Pelts of Fur Bearing Animals Produced, by Province, Years Ended June 30, 1963 and 1964

Province or Territory	1963 ^r			1964		
	Pelts	Value	Percentage of Total Value	Pelts	Value	Percentage of Total Value
	No.	\$		No.	\$	
Newfoundland.....	41,091	485,778	1.5	49,662	621,761	1.8
Prince Edward Island.....	3,152	44,155	0.1	2,956	45,726	0.1
Nova Scotia.....	84,263	1,003,253	3.1	104,144	1,378,014	3.9
New Brunswick.....	60,227	310,114	1.0	46,006	244,284	0.7
Quebec.....	329,536	2,838,380	8.8	431,304	3,569,074	10.1
Ontario.....	1,096,173	9,228,499	28.9	1,197,270	10,843,095	30.8
Manitoba.....	582,489	4,725,547	14.7	623,846	4,855,206	13.8
Saskatchewan.....	610,901	2,636,765	8.3	460,075	2,263,529	6.4
Alberta.....	1,409,692	4,411,280	13.7	891,683	4,738,541	13.4
British Columbia.....	601,424	5,324,135	16.7	450,635	5,365,066	15.2
Yukon Territory.....	45,131	87,625	0.3	86,394	171,209	0.5
Northwest Territories.....	259,137	846,420	2.6	218,694	1,163,000	3.3
Canada¹.....	5,123,395	31,943,418	...	4,562,768	35,259,426	...

¹ Totals include a few pelts and their values not allocated to a province or territory.

Wild Fur Production.—The principal kinds of wild fur pelts taken, according to their value in 1963-64, were beaver, mink, muskrat, otter, lynx, white fox, marten and squirrel. These eight kinds of pelts accounted for 95.6 p.c. of the total value of wild pelts produced.

3.—Pelts of Wildlife Fur Bearing Animals Taken, by Kind, Years Ended June 30, 1963 and 1964

Kind	1963			1964		
	Pelts	Total Value	Average Value	Pelts	Total Value	Average Value
	No.	\$	\$	No.	\$	\$
Badger.....	388	989	2.55	409	1,175	2.87
Bear, white.....	477	27,222	57.07	482	33,082	68.63
Bear, black or brown.....	801 ¹	7,741	10.83	702	10,261	14.61
Beaver.....	436,780	5,449,452	12.48	463,837	6,181,030	13.33
Coyote or prairie wolf.....	13,879	86,266	6.22	19,366	118,990	6.14
Ermine (weasel).....	144,808	116,736	0.81	124,079	99,701	0.80
Fisher.....	6,254	70,283	11.24	8,364	92,252	11.03
Fox, blue.....	54	376	6.96	171	1,061	6.20
Fox, cross and red.....	15,198	70,718	4.65	19,214	83,761	4.36
Fox, silver.....	734	3,904	5.32	293	1,695	5.78
Fox, white.....	9,880	143,648	14.54	32,447	489,067	15.07
Fox, not specified.....	8	30	3.75	2	7	3.50
Lynx.....	51,376	684,446	13.32	36,197	529,674	14.63
Marten.....	37,432	310,046	8.28	49,664	439,033	8.84
Mink.....	134,291	2,121,819	15.80	121,459	1,971,186	16.23
Muskrat.....	1,392,282	1,850,963	1.33	1,433,057	1,962,381	1.37
Otter.....	17,722	407,175	22.98	19,802	547,286	27.64
Rabbit.....	179,260	84,610	0.47	143,873	53,393	0.37
Raccoon.....	27,953	66,247	2.37	25,975	49,611	1.91
Skunk.....	595	345	0.58	374	159	0.43
Squirrel.....	1,338,930	653,379	0.49	653,175	379,525	0.58
Wildcat.....	1,070	4,385	4.10	1,133	4,675	4.13
Wolf.....	656	9,258	14.11	1,474	24,067	16.33
Wolverine.....	257	3,822	14.87	479	6,401	13.36
Totals.....	3,811,085	12,173,860	...	3,156,028	13,079,473	...

¹ Includes 86 grizzly bears.

Fur Farm Production.—Mink now accounts for over 99 p.c. of the total value of fur farm production. In 1963 the number of mink pelts taken continued upward, reaching 1,390,139 with a value of \$21,989,675. The total number of all types of pelts taken was 1,406,740 with a value of \$22,179,953.

On the whole, there was little change in the number of fur farms operating in 1963 compared with 1962, some provinces reporting small increases and others small decreases. Although mink farms decreased in number from 1,505 to 1,475 in this comparison, the number of animals on those farms increased from 557,011 to 590,233. Chinchilla farms also decreased in number from 468 to 449 but the number of animals increased from 35,515 to 39,882. In 1963, 206 farms raising nutria reported 7,155 animals and 42 farms raising fox had 785 animals; the number of nutria increased by 1,229 over 1962 and the number of fox decreased by 98.

4.—Fur Farms and Value of Pelts Produced Thereon, by Province, 1962 and 1963

Province	Fur Farms at Year End		Value of Pelts Produced on Fur Farms	
	1962 [*]	1963	1962 [*]	1963
	No.	No.	\$	\$
Newfoundland.....	37	38	426,551	556,053
Prince Edward Island.....	15	13	43,149	45,165
Nova Scotia.....	106	120	903,654	1,246,474
New Brunswick.....	31	33	88,935	85,691
Quebec.....	182	142	1,335,404	1,488,463
Ontario.....	721	816 ¹	5,786,231	6,896,156 ¹
Manitoba.....	207	199	3,099,042	3,118,543
Saskatchewan.....	143	137	1,220,697	1,236,005
Alberta.....	265	254	2,462,650	2,904,978
British Columbia.....	408	405	4,401,778	4,601,504
Totals.....	2,115	2,157	19,769,558²	22,179,953²

¹ Includes some nutria farms not previously contacted; thus, larger figures do not necessarily reflect an actual increase.

² Includes some pelts not valued by province.

5.—Number and Value of Pelts Produced on Fur Farms, by Kind, 1962 and 1963

Kind	1962 [*]		1963	
	Pelts	Value	Pelts	Value
	No.	\$	No.	\$
Fox.....	1,647	16,470	837	10,462
Blue.....	69	690	55	688
Platinum.....	748	7,480	320	4,000
Silver.....	753	7,530	409	5,112
Unspecified.....	77	770	53	662
Mink.....	1,295,672	19,593,300	1,390,139	21,989,675
Standard.....	221,568	4,005,949	263,173	5,387,153
Grey.....	44,974	586,462	49,518	607,585
Dark blue.....	95,853	1,358,238	75,912	1,093,893
Light blue.....	253,634	4,012,490	274,047	4,028,491
Brown.....	437,129	6,089,208	463,052	7,214,350
Beige.....	176,608	2,719,763	204,311	2,901,216
White.....	65,906	821,190	60,126	756,987
Chinchilla.....	11,193	151,755	12,308	172,748
Nutria.....	3,703	7,406	3,411	6,822
Totals¹.....	1,312,310	19,769,558	1,406,740	22,179,953

¹ Includes pelts not allocated by type.

Exports and Imports.—The Canadian fur trade, both export and import, is mostly in undressed furs, the value of dressed and manufactured furs going out of or coming into Canada being a comparatively small proportion of the total. Canadian fur exports consist largely of those produced in greatest abundance, mink being by far the most valuable followed by beaver, seal, muskrat, fox, dressed raccoon and squirrel. Mink, Persian lamb, dressed seal, fox, muskrat and raccoon make up a large part of the imports. Exports and imports of furs, undressed, dressed and manufactured, to and from Britain, the United States and all countries, are given for the years 1963 and 1964 in Table 6.

6.—Exports and Imports of Furs, by Kind, 1963 and 1964

Kind of Fur	1963			1964		
	Britain	United States	All Countries	Britain	United States	All Countries
EXPORTS						
	\$	\$	\$	\$	\$	\$
Undressed—						
Beaver.....	1,138,007	2,727,055	5,597,822	1,165,024	2,366,978	5,218,665
Chinchilla.....	1	1	1	360	231,262	248,957
Ermine or weasel.....	113,133	9,516	123,702	158,020	14,736	182,474
Fisher.....	33,755	31,854	90,488	54,774	44,909	119,883
Fox, all types.....	15,408	610,427	660,739	9,058	586,018	686,273
Lynx.....	74,201	714,616	794,183	213,676	212,096	458,653
Marten.....	97,787	366,864	469,637	123,415	392,910	521,996
Mink.....	2,625,253	15,628,836	20,627,097	2,027,316	12,501,003	17,560,350
Muskrat.....	1,066,767	86,371	1,357,758	1,289,335	47,009	1,464,308
Otter.....	1,686	69,923	118,240	22,141	74,970	162,777
Rabbit.....	38,234	13,655	55,237	1,225	32,577	55,596
Raccoon.....	1,357	39,439	45,398	5,942	30,688	37,702
Seal.....	1	1	1	1,739,643	134,963	2,766,298
Squirrel.....	614,220	5,280	619,998	539,410	2,372	543,209
Wolf.....	1	1	1	16,201	127,151	143,352
Other.....	37,762	353,894	426,005	48,843	74,717	157,106
Dressed—						
Mink.....	50,471	38,180	285,071	32,826	48,717	444,970
Raccoon.....	—	1,268,484	1,268,964	—	615,179	615,179
Fur plates, mats, etc.....	—	3,692	26,087	850	24,173	45,738
Other.....	60,337	2,056,859	3,126,575	169,649	1,265,325	2,378,032
Manufactured.....	1,142,714	472,876	4,074,851	2,182,022	669,436	6,227,931
Totals.....	7,111,092	24,497,821	39,767,852	9,799,730	19,497,189	40,039,449
IMPORTS						
	\$	\$	\$	\$	\$	\$
Undressed—						
China and Jap mink.....	71,787	2,975	578,758	—	2,767	244,085
Fox.....	568,458	201,826	1,187,548	541,411	284,229	1,202,954
Kolinsky.....	64,264	13,630	504,217	19,598	14,500	167,716
Mink.....	1,247,581	3,362,996	7,979,477	1,553,141	3,088,728	8,788,275
Muskrat.....	4,943	904,804	912,101	—	811,412	811,412
Persian lamb.....	2,168,596	2,785,256	6,588,900	862,001	1,968,927	5,356,324
Rabbit.....	304	145,001	223,257	—	153,956	207,399
Raccoon.....	—	1,304,934	1,306,633	—	785,798	785,798
Squirrel.....	49,202	16,146	71,960	29,354	4,883	53,818
Other.....	115,442	1,264,919	1,559,244	181,528	1,321,925	1,735,673
Dressed—						
Hatters' furs.....	19,650	199,938	697,821	1,258	169,730	506,676
Mink.....	1	1	1	650	567,906	593,116
Rabbit.....	950	25,122	67,845	1	1	1
Seal.....	1	1	1	25,674	2,772,883	2,872,792
Sheep and lamb.....	9,257	178,371	225,617	67,186	103,841	391,637
Fur plates, mats, etc.....	11,238	596,784	824,806	16,382	421,640	583,016
Other.....	217,009	2,756,779	3,383,580	55,928	517,303	815,902
Manufactured.....	11,238	596,784	824,806	17,936	141,586	191,531
Totals.....	4,559,899	14,356,265	26,936,570	3,372,047	13,132,014	25,308,124

¹ Included in "Other".

Subsection 2.—The Fur Processing Industry

The rather general term "fur processing" includes the fur dressing and dyeing industry and the fur goods industry. The former is concerned with the dressing or dyeing of pelts on a custom basis and the latter is a manufacturing industry that makes up fur goods such as coats, scarves and gloves.

In the 1962 survey, as fully explained in Chapter XVI on Manufactures, a change was made in the "total activity" approach and this new concept was also reflected in the 1961 data. Tables 7 and 8 give selected statistics on the new basis for 1961-63. In 1963, the number of skins treated was 5,738,549, of which mink comprised 29 p.c., muskrat 19 p.c., Persian and other types of lamb 13 p.c., raccoon 10 p.c., sheep, shearing and other types of sheep 9 p.c. and all other types of skins 20 p.c.

7.—Principal Statistics of the Fur Dressing and Dyeing Industry, 1961-63

Item	1961	1962	1963
Establishments..... No.	15	19	18
Administrative and Other Salaried Employees—			
Male..... No.	102	92	72
Female..... "	17	25	25
Salaries paid..... \$	651,685	739,276	648,879
Production and Related Employees—			
Male..... No.	747	781	763
Female..... "	131	137	136
Wages paid..... \$	3,178,219	3,209,152	3,368,466
Cost of materials used in manufacturing..... \$	1,265,565	1,586,469	1,530,371
Pelts treated..... No.	6,740,325	6,229,747	5,738,549
Amount received for treatment of furs and other manufacturing revenue..... \$	6,833,867	7,143,496	7,013,118

The shipments of ladies' fur coats, including boleros and jackets, by all industries, in 1963 numbered 129,060 and were valued at \$39,621,000.

8.—Principal Statistics of the Fur Goods Industry, 1961-63

Item	1961	1962	1963
Establishments..... No.	444	429	419
Administrative and Other Salaried Employees—			
Male..... No.	598	496	461
Female..... "	204	179	174
Salaries paid..... \$	3,544,888	3,310,355	3,448,066
Production and Related Employees—			
Male..... No.	1,800	1,712	1,500
Female..... "	1,133	928	813
Wages paid..... \$	9,759,310	9,342,619	8,987,115
Cost of materials used in manufacturing..... \$	37,261,574	36,369,045	38,405,020
Value of factory shipments and other manufacturing revenue... \$	60,118,411	58,039,700	59,912,851
Total revenue..... \$	63,439,305	61,114,712	61,946,676

CHAPTER XV.—ELECTRIC POWER*

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

Section 1.—Electric Power Development

Subsection 1.—Historical and Current Trends in Power Development

Electric power development in Canada has undergone remarkable and sustained growth since the beginning of the century. From a modest 133,000 kw. of generating capacity installed at the end of 1900, Canada's installed hydro capacity rose to over 20,300,000 kw. by the end of 1964, and thermal capacity to almost 7,000,000 kw.

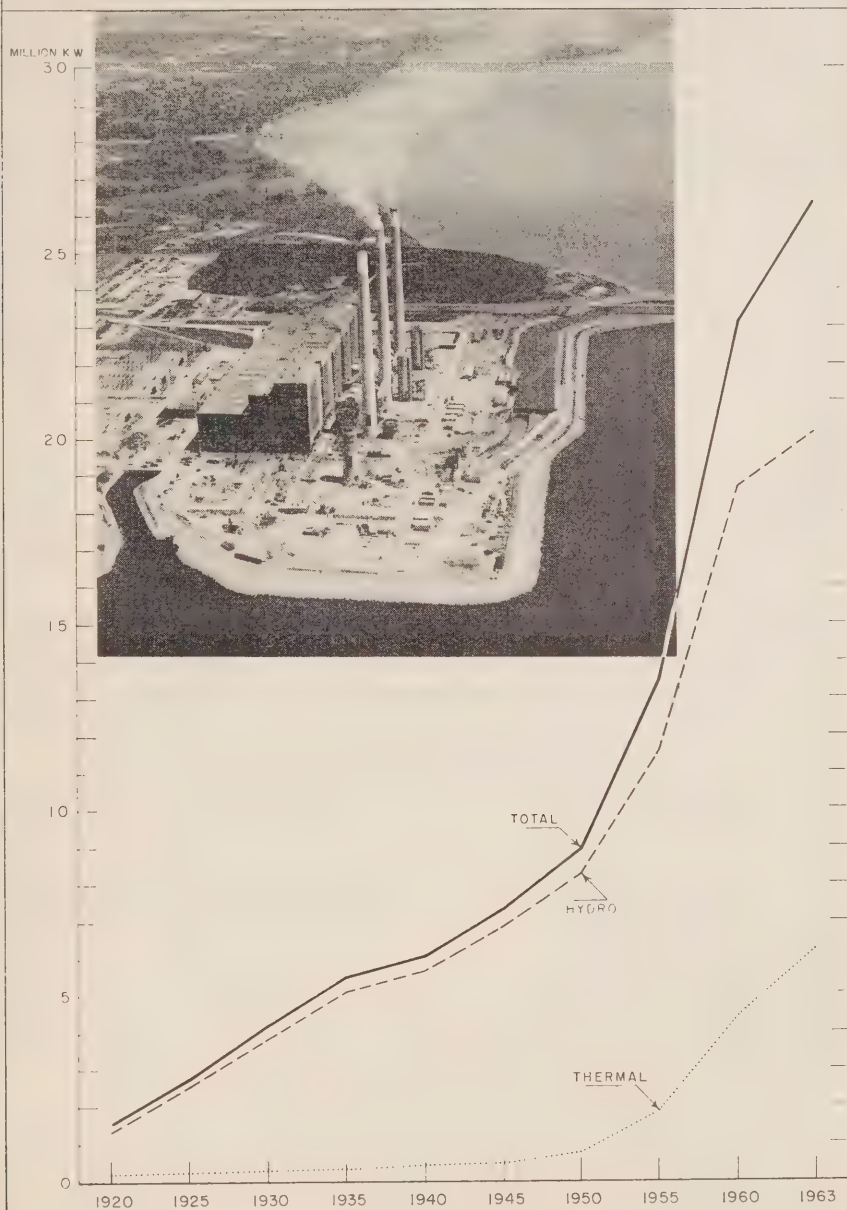
The chart on p. 643 shows the expansion in installed generating capacity in hydro and thermal stations that has taken place in the past fifty years. Thermal-electric power development in Canada was not well documented early in the century but it is apparent that its growth was slow and of relatively minor importance until the late 1940's. The rate of development of hydro facilities, on the other hand, tended to accelerate after the turn of the century when improvements in electric power transmission techniques were introduced and increasing emphasis began to be placed on the construction of large hydro-electric stations.

During the prosperous 1920's, demand for electricity became heavier and the rate of installation increased appreciably. Then, under the depressed conditions of the early 1930's, power demand dropped off but did not show up immediately as a drop in the installation rate because of the time lag inherent in hydro-electric power development. The completion of hydro projects initiated prior to the depression period accounted for the continuation of a high rate of capacity installation up until 1935; thereafter, poor economic conditions in the 1935-39 period resulted in a reduced rate.

In the early war years, the tremendous demand for power to drive Canada's war industries accounted for the sharp rise in installation of new generating facilities between 1940 and 1943 but in the later war years construction dropped off so that, from 1944 to 1947, a second flattening occurred in the growth curve. After the War, industrial expansion and rapidly growing residential and agricultural development placed extremely heavy demands on power generating facilities, to stay abreast of which the addition of new

* Sections 1 and 2 of this Chapter were prepared by the Water Resources Branch, Department of Northern Affairs and National Resources, Ottawa; Sections 3 and 4 were revised by the Energy Statistics Section, Industry Division, Dominion Bureau of Statistics; and Section 5 by the various provincial Commissions concerned.

GROWTH IN ELECTRIC POWER GENERATING CAPACITY IN CANADA, 1920-63



capacity was required at a rate higher than at any time in Canada's history. These demands also led to the start of an extensive program of thermal plant construction in the early 1950's, since they could not be satisfied from hydro sources alone. In the period 1950-64, the average annual rate of installation of both hydro and thermal facilities was about 1,200,000 kw., with hydro contributing two kilowatts of new capacity for each kilowatt contributed by thermal. However, it is interesting to note that the average increase in thermal generating capacity over the five years 1960-64 equalled the increase in hydro capacity and promises to surpass it in the not too distant future.

Table 1 shows the present status of installed generating capacity in hydro and thermal stations and the combined total for all stations in Canada as at Jan. 1, 1965.

**1.—Installed Hydro- and Thermal-Electric Generating Capacity,
by Province, as at Jan. 1, 1965**

Province or Territory	Hydro	Thermal	Total
	kw.	kw.	kw.
Newfoundland.....	453,000	73,000	526,000
Prince Edward Island.....	—	58,000	58,000
Nova Scotia.....	143,000	389,000	532,000
New Brunswick.....	229,000	300,000	529,000
Quebec.....	9,553,000	317,000	9,870,000
Ontario.....	5,937,000	2,865,000	8,802,000
Manitoba.....	747,000	346,000	1,093,000
Saskatchewan.....	320,000	610,000	930,000
Alberta.....	291,000	936,000	1,227,000
British Columbia.....	2,613,000	845,000	3,458,000
Yukon Territory.....	28,000	4,000	32,000
Northwest Territories.....	17,000	25,000	42,000
Canada.....	29,331,000	6,768,000	27,099,000

Current Trends.—Although water power traditionally has been and still is the main source of electric energy in Canada, thermal sources some day will undoubtedly become the main supplier. The choice between development of a hydro-electric power site and construction of a thermal generating station must take into account a number of complex considerations, the most important of which are economic in nature. In the case of a hydro-electric project, the heavy capital costs involved in construction are offset by maintenance and operating costs considerably lower than those for a thermal plant. The long life of a hydro plant and the dependability and flexibility of operation in meeting varying loads are added advantages. Also important is the fact that water is a renewable resource. The thermal station, on the other hand, can be located close to the demand area, with a consequent saving in transmission costs. With the current trend to large steam stations, however, a certain amount of the flexibility of location of thermal stations is lost because large steam units require considerable quantities of water for cooling purposes, making it essential that such stations be sited close to an adequate water supply.

The marked trend to thermal development which became apparent in the 1950's can be explained in part by the fact that, by that time, in many parts of Canada most of the hydro-electric sites within economic transmission distance of load centres had been developed and planners had to turn to other sources of electric energy. More recently, however, advances in extra-high-voltage transmission techniques are providing a renewed impetus to the development of hydro power sites previously considered too remote.

Because of the relatively long starting-up time required by large thermal units, thermal stations tend to lack flexibility of operation and can be used most efficiently to meet continuous load conditions. Hydro stations, on the other hand, can put generating units on the line with minimum delay and hence are admirably suited to supply power to meet the peak loads which may occur several times each day. By combining the advantages of both hydro and thermal stations in integrated supply systems, power producers are now achieving much greater flexibility of operation.

Another trend in development designed to meet the problem of varying daily loads is the use of pumped storage. An example is the Sir Adam Beck hydro development at Niagara Falls where water taken from the Niagara River above the Falls is carried by tunnel and power canal to penstocks which supply the main generating station on the bank of the Niagara River some distance below the Falls. In off-peak hours, power from the main station is used to pump water from the power canal into a reservoir maintained at a higher level; during peak-load hours, the pumps, which are dual-purpose units, operate as generators and are driven by water released from the reservoir. The pumping-generating units at this development make available an extra 176,700 kw. of generating capacity. A pumping-generating station using the same general principle is under construction on the Brazeau River in Alberta as part of the 338,440-kw. Big Bend hydro development.

Perhaps the most promising application of the pumping-generating principle is its use in conjunction with nuclear power stations. Nuclear units, in common with the larger conventional thermal units, can be used most efficiently under conditions of continuous operation. Off-peak nuclear power can be used to operate pump-turbine units and the hydro-electric power derived from operating the units as generators is available for use during periods of peak demand.

Subsection 2.—Utilization of Power

Table 2 shows electric power generating capacity in the provinces and territories under the categories "utilities" and "industries". The classification "utilities" refers to power-producing organizations who sell most of the power they develop. In some instances, it includes also certain subsidiary companies whose main purpose is to develop and sell power to a parent company for industrial purposes. The total of 22,392,000 kw. of capacity installed in plants operated by utilities represents 83 p.c. of Canada's total installed capacity at Jan. 1, 1965. The classification "industries" refers to power-producing organizations who develop power mainly for their own use. Although the figures indicate that industries have developed only 17 p.c. of Canada's total installed electric power capacity, it should be emphasized that, in addition to the power generated in their own plants, industries purchase large amounts of power from utilities.

2.—Installed Electric Generating Capacity classified by Utilities and Industries, by Province, as at Jan. 1, 1965

Province or Territory	Utilities	Industries	Total
	kw.	kw.	kw.
Newfoundland.....	492,000	34,000	526,000
Prince Edward Island.....	58,000	—	58,000
Nova Scotia.....	473,000	59,000	532,000
New Brunswick.....	423,000	103,000	529,000
Quebec.....	7,589,000	2,281,000	9,870,000
Ontario.....	8,275,000	527,000	8,802,000
Manitoba.....	1,072,000	21,000	1,093,000
Saskatchewan.....	792,000	138,000	930,000
Alberta.....	1,155,000	72,000	1,227,000
British Columbia.....	2,009,000	1,449,000	3,458,000
Yukon Territory.....	21,000	11,000	32,000
Northwest Territories.....	33,000	9,000	42,000
Canada.....	22,392,000	4,707,000	27,099,000

The pulp and paper industry in Canada, one of the world's great industrial enterprises, is a foremost user of electric energy, consuming nearly one fifth of the total electric energy generated in Canada. By far the larger portion of the energy used by this industry is derived from water power. Mill capacity for the production of newsprint is considerably greater than that of any other country in the world and in production of pulp Canada is second only to the United States. The fact that over 90 p.c. of the manufactured news-

print is exported gives some indication of the importance to the Canadian economy of this industry, the success of which is facilitated by the existence of widespread harnessable water resources.

The mineral industry consumes another fifth of the country's total energy production and approximately 75 p.c. of the electric power used by this industry is used in the smelting and refining of metals. The mining of metals is carried on mainly in two physiographic regions of the country—the Western Cordillera and the Canadian Shield. The mountainous topography and relatively high precipitation of the Western Cordillera produce many tumultuous rivers capable of development as hydro-electric power sites. The Canadian Shield, an extensive Precambrian formation stretching in a wide sweep around Hudson Bay from the Mackenzie River basin to the eastern tip of Labrador, is characterized by large numbers of lakes connected by short river sections with numerous rapids and falls also suitable for development. Thus, the incidence of large water power resources in the regions where important metal deposits have been found has greatly facilitated development of these deposits. Recent examples are the nickel mining and refining complex at Thompson in Manitoba, which uses hydro power generated in the Kelsey plant on the Nelson River, and the iron ore mining operations in Labrador, which are supplied by the Twin Falls plant on the Unknown River. That the availability of abundant supplies of low-cost electric energy is paramount to the smelting industry is well illustrated by the existence in Canada of large aluminum smelters. These smelters, constructed in conjunction with huge hydro power plants, supply one quarter of the world's requirements of aluminum, although their raw material is imported; Canada has no known deposits of bauxite.

Subsection 3.—Water Power Resources, Undeveloped and Developed

Table 3 presents a summary of developed water power in Canada and an estimate of undeveloped water power potential, based on records maintained by the Water Resources Branch of the Department of Northern Affairs and National Resources. Estimates of available power are shown for undeveloped sites only; for developed sites, the total generating capacity actually installed is indicated. It should be noted that the capacity installed at an existing hydro-electric development is frequently in excess of the continuous power available at the site. The relationship between installation and available power is explained on p. 647.

3.—Water Power Resources, by Province, as at Jan. 1, 1965

Province or Territory	Undeveloped Water Power			Developed Water Power
	Available Continuous Power at 88 p.c. Efficiency			Installed Generating Capacity
	at Q95 ¹	at Q50 ²	at Qm ³	
	kw.	kw.	kw.	
Newfoundland.....	1,240,000	3,635,000	4,871,000	453,000
Prince Edward Island.....	—	1,000	2,000	—
Nova Scotia.....	21,000	112,000	165,000	143,000
New Brunswick.....	62,000	222,000	499,000	229,000
Quebec.....	9,000,000	27,200,000	34,200,000	9,553,000
Ontario.....	493,000	1,148,000	1,747,000	5,937,000
Manitoba.....	2,990,000	5,583,000	5,997,000	747,000
Saskatchewan.....	387,000	812,000	1,089,000	320,000
Alberta.....	806,000	2,289,000	3,604,000	291,000
British Columbia.....	6,039,000	17,433,000	32,442,000	2,613,000
Yukon Territory.....	841,000	3,932,000	6,625,000	28,000
Northwest Territories.....	525,000	1,153,000	1,826,000	17,000
Canada.....	22,404,000	63,523,000	93,067,000	20,331,000

¹ Power equivalent of flow available 95 p.c. of the time.
of the time.

² Power equivalent of flow available 50 p.c. of the time.

³ Power equivalent of flow available 50 p.c. of the time.

Undeveloped Water Power Resources.—Table 3 gives estimates of undeveloped power based on different rates of flow: the first column indicates continuous power ordinarily available during periods of low discharge under existing conditions of river flow based on Q95, which is the natural or modified flow available 95 p.c. of the time; the second column shows dependable maximum power based on Q50, which is the natural or modified flow available for at least 50 p.c. of the time; and the third column shows dependable maximum power based on Q_m , the arithmetical mean flow. On rivers for which flow records are sparse or non-existent, estimates of flow are made from available information relating to run-off in the same general area. The hydraulic head used in calculating undeveloped water power is based on the actual drop or the feasible concentration of head which has been measured or carefully estimated.

It should be emphasized that the figures of the first two columns represent only the minimum water power possibilities in Canada for the reason that the estimates are based upon existing river flow and, for the most part, do not reflect the benefits of streamflow regulation that would result from the development of storage potential. On the other hand, the arithmetical mean flow figures represent the power that would be obtainable if the entire flow in the river could be regulated to provide a continuous flow of constant magnitude. It can readily be seen that, because the latter condition assumes complete regulation, estimates of potential based upon arithmetical mean flow will, if other pertinent factors are neglected, exceed the amount of installed capacity that might be expected to be installed at the site, particularly where little or no storage is available. However, recent experience in the development of water power sites has indicated that, in fact, the generating capacities installed at many sites are very considerably in excess of what might be dictated by even the arithmetical mean flow. Several major river-diversion possibilities exist, particularly in British Columbia. For this reason, the estimates of potential of British Columbia's undeveloped hydro resources have recently been boosted substantially, mainly because of the inclusion of figures based upon the diversion of rivers which, if they are developed at all, will almost certainly be developed on a combined-river basis.

Developed Water Power Resources.—The figures of installed generating capacity given in Table 3 are based on the manufacturer's rating in kilowatts as shown on the generator name-plate, or derived from the rating where it is indicated in kilovolt-amperes. The maximum economic installation at a power site can be determined only by careful consideration of all the conditions and circumstances pertinent to its individual development. It is usual practice, however, to install units having a combined capacity in excess of the available continuous power at Q50, and frequently in excess of the power available at Q_m . There are a number of reasons for this. The excess capacity may be installed for use at peak-load periods, to take advantage of periods of high flow, or to facilitate plant or system maintenance. In some instances, storage dams have been built subsequent to initial development to smooth out fluctuations in river flows. In other cases, deficiencies in power output during periods of low flow have been offset by auxiliary power supplied from thermal plants, or by inter-connection with other plants which operate under different load conditions or are located on rivers with different flow characteristics.

Thus, the extent to which the installed capacity exceeds the available continuous power at the various rates of flow is dependent upon the factors that govern the system of plant operation, and varies widely in different areas of the country. In some developments, the difference may amount to several hundred per cent. For this reason, discretion should be used in comparing the figures in the last column with those in the preceding columns, as available continuous power and installed capacity are not directly comparable. As a rough guide, however, it may be assumed that the power equivalent of the flow at Q50 represents an approximate, if conservative, estimate of hydro generating capacity remaining to be installed in Canada.

Provincial and Territorial Distribution.—The provincial and territorial distribution of undeveloped water power resources and installed generating capacity, given in

Table 3, reveals that substantial amounts of water power have been developed in all provinces except Prince Edward Island, where water power resources are meagre. As natural resource development proceeds, the fortunate incidence of water power in proximity to mineral, forest and other resources becomes increasingly apparent. There is little doubt that the existence of large amounts of potential hydro power on northern rivers will prove to be a factor of prime importance in the eventual realization of the natural wealth of Canada's northland.

The water power resources of *Newfoundland*, determined on the basis of the limited available streamflow data, are estimated to be of very considerable magnitude. On the Island, although the length of the rivers is generally not great, topography and run-off are favourable for hydro-electric power development. Of the substantial capacity installed, a very large portion serves the pulp and paper industry. In Labrador, the Churchill River and its tributaries, for the most part undeveloped, constitute one of the largest potential sources of water power in Canada.

In *Prince Edward Island* there are no large streams and water power plants are limited in size to those used to operate small mills. The water power resources of *Nova Scotia* and *New Brunswick*, although small in comparison with those of other provinces, are a valuable source of energy and make a substantial contribution to the economies of the two provinces. Numerous rivers in both provinces provide moderate-sized power sites either within economic transmission distance of the principal cities and towns or advantageously situated for use in development of the timber and mineral resources. These provinces are also favoured with abundant indigenous coal supplies.

Quebec is the richest of all the provinces in water power resources, possessing approximately 45 p.c. of the total recorded for Canada. Quebec also leads in developed water power, its present installation of 9,600,000 kw. representing about 47 p.c. of the national total. The largest single hydro-electric installation in Canada is the Quebec Hydro-Electric Commission's 1,574,260-kw. Beauharnois development on the St. Lawrence River; also notable are the Commission's Bersimis I development on the Bersimis River having an installed capacity of 912,000 kw., and the Aluminum Company of Canada Limited 717,000-kw. Shipshaw plant on the Saguenay River. A major power project which represents a significant advance in the development of Quebec's hydro-electric resources is under construction. This project, involving the harnessing of the headwaters of the Manicouagan and Outardes Rivers, will permit the eventual installation of some 5,600,000 kw. of new capacity on the two rivers. Power production in the province is facilitated by the regulation of streamflow by the provincial Department of Natural Resources through the storage dams which it owns and operates. In 1963, the Government of Quebec, through the Quebec Hydro-Electric Commission, purchased the assets of the major private electric utilities in the province.

Almost all of the sizable water power potential in *Ontario* within easy reach of demand centres has been developed and planners are looking to the more remote sites as new sources of supply. Improvements in long-distance transmission techniques have brought many of these sites within the economic orbit of demand centres. Several sites are being developed and a number of others are under investigation. Most of the hydro-electric power produced in the province comes from the generators of The Hydro-Electric Power Commission of Ontario, Canada's largest power producing and distributing organization. Ontario's largest generating station is located on the Niagara River at Queenston, where the Sir Adam Beck-Niagara Generating Stations Nos. 1 and 2, and the associated pumping-generating station have a combined generating capacity of 1,804,200 kw. In addition to the power generated in its own plants, the Commission purchases large amounts of electric power generated outside the province, chiefly in Quebec.

Of the three Prairie Provinces, *Manitoba*, with immense hydro-electric capabilities on the Winnipeg, Churchill, Nelson and Saskatchewan Rivers, is the most generously endowed with water power resources. Until recently, hydro-electric generating stations

on the Winnipeg River supplied most of the power requirements of southern Manitoba. However, with the advent of high-voltage, long-distance transmission, it may be expected that ever-increasing amounts of power from hydro-electric stations on northern rivers will be carried south to help meet the province's constantly growing power demands. The first high-voltage, long-distance link will go into service in 1965 to carry power from the Saskatchewan River in Manitoba to load centres in the southern parts of the province. Large water power resources exist in the central and northern parts of *Saskatchewan*, principally on the Churchill, Fond du Lac, and Saskatchewan Rivers. In 1963, power from the first development on the Saskatchewan River was fed into the transmission network of the provincially owned Saskatchewan Power Corporation, which serves the more settled areas of the province. These areas previously had been served by electric power from thermal plants fuelled by coal, oil or natural gas, the hydro-electric power generated in the province being used almost exclusively for mining purposes in northern areas. In *Alberta*, the principal hydro-electric developments are located on the Bow River and its tributaries and, from these developments, Calgary Power Ltd. serves most of the southern part of the province. Substantial water power resources are located in northern regions and, although these are somewhat remote from present centres of population, the advent of extra-high-voltage transmission has enhanced the prospect of their development.

As mentioned previously, *British Columbia* has many mountain streams that offer abundant opportunity for the development of hydro-electric power. In terms of recorded available water power resources, developed and undeveloped, the province ranks second in Canada and is exceeded only by Quebec and Ontario in the amount of generating capacity installed. Notable for the magnitude of their power potential are such rivers as the Columbia, the Fraser, the Peace and the Stikine. Up to the present time, however, hydro-electric developments on smaller rivers in the southern areas have satisfied the major load requirements of the province but now the immense power resources of the Peace River are in process of being harnessed and by 1968 will supplement the energy supply. Development of the Columbia River, which flows southward and crosses the international boundary, is also getting under way; it will provide initially three huge storage reservoirs and eventually make available a significant amount of 'at site' power in the Canadian portion of the basin. The foremost producer and distributor of electric power in British Columbia is the provincially owned British Columbia Hydro and Power Authority.

Power from present developments in the *Yukon Territory* and the *Northwest Territories* is used almost exclusively to satisfy the needs of local mines and adjacent settlements. Owing to the lack of developed native fuel sources and to transportation difficulties, water power is of special importance in the development of mining areas, such as Mayo in the Yukon Territory and Yellowknife in the Northwest Territories. In 1948, to encourage the development of the resources of Northern Canada, the Federal Government established what is now the Northern Canada Power Commission (see p. 137), to be responsible for the construction and management of public utility plants. In Yukon Territory, most of the resources are located on the Yukon River and its tributaries. The possibility exists of diverting the headwaters of the Yukon River through the Coast Mountains to utilize a high head near tidewater in northern British Columbia but such a development would affect adversely the potential of sites on the main river. Resources in the Northwest Territories have not been surveyed to the same extent as those in Yukon Territory but they are nevertheless known to be of considerable magnitude, particularly on rivers flowing into Great Slave Lake. Of major significance, as well, is the hydro-electric potential of the South Nahanni River, which drains to the Mackenzie River via the Liard River. On the basis of preliminary investigations, it is estimated that, with total regulation and complete use of the head susceptible of development, the hydro-electric potential of the South Nahanni River would be close to 1,000,000 kw. Indications are that the rivers draining the District of Keewatin, north of Manitoba, also will contribute materially to the total power potential of the Northwest Territories.

Subsection 4.—Thermal Power Generation

At the end of 1964, the total installed thermal generating capacity in Canada was 6,768,000 kw., about 25 p.c. of the total electric generating capacity in the country. That energy produced in thermal plants during the year accounted for only 13 p.c. of the total may be attributed in part to the fact that a considerable amount of the capacity installed is maintained for stand-by purposes. As stated earlier, however, the current emphasis on thermal plant construction is likely to continue and to become more marked as development of the nation's water power reserves becomes more complete.

Conventional Thermal Power.—Approximately 85 p.c. of all of the conventional thermal power generating equipment in Canada is driven by steam turbines. The magnitude of the loads being carried by steam plants has led to the installation of steam units with capacities as high as 300,000 kw. Even larger units, of 500,000-kw. capacity, will go into service within the next three or four years. The remainder of the load is carried by gas turbine and internal combustion equipment. The flexibility of internal combustion engines make this type of equipment particularly suitable for meeting power loads in smaller centres, especially in the more isolated areas.

Table 1 (p. 644) shows that the Provinces of Prince Edward Island, Nova Scotia, Saskatchewan and Alberta depend upon thermal capacity for most of their power requirements and that New Brunswick has slightly more thermal than hydro. For Ontario, where the present hydro capacity is about twice the thermal, forecasts based on present construction schedules indicate that by the early 1970's the province's total installed thermal capacity will have overtaken hydro.

With the exception of several sizable plants in St. John's and Grand Falls, most of the thermal-electric capacity in *Newfoundland* is made up of relatively small units used to supply power to small, often isolated, communities. With the wealth of water power readily available in the province, it is not likely that Newfoundland will experience the need for large thermal stations for some time to come. *Prince Edward Island* depends almost exclusively on thermal sources for its power supply and almost all of the province's generating capacity is oil-fuelled. In *Nova Scotia*, most of the energy generated in thermal-electric utility plants is derived from coal, with a smaller amount from petroleum fuels, and in *New Brunswick* petroleum fuels provide slightly more than half of the thermal-electric energy.

The abundance of *Quebec's* water power wealth, much of it within economic transmission distance of existing demand areas, has so far limited the application of thermal power to specific local use. However, the growing emphasis on thermal power in other parts of Canada is also beginning to be apparent in Quebec, where thermal capacity will serve not only to help guarantee an adequate power supply in the face of increasingly heavy demands but also to render the almost exclusively hydro-electric base more flexible through integrated operation. The first unit of a large thermal plant went into operation at Tracy near Sorel in 1964 and a second large plant is planned for service in the Gaspé region by 1970.

Ontario has more thermal capacity than any other province in Canada; capacity installed in the province at the end of 1964 totalled 2,865,000 kw., which was approximately 42 p.c. of the national total, and another 4,800,000 kw. is scheduled for service in the period 1965-71. The country's largest thermal station is Ontario Hydro's 1,200,000-kw. Richard L. Hearn generating station at Toronto. Three 300,000-kw. units, the largest in operation in Canada, make up the generating capacity at the Lakeview station, just west of Metropolitan Toronto, scheduled for expansion to 2,400,000 kw. by 1968. Four even larger units of 500,000-kw. capacity are planned for the Lambton station near Sarnia, installation of which will be completed by 1971.

Manitoba supplements its predominantly hydro-based power supply with a substantial amount of thermal capacity but current emphasis is on development of water power resources. *Saskatchewan*, until recently, has relied on thermal capacity to satisfy the needs of the more settled areas and hydro-electric power generated in the province has been used almost exclusively for mining purposes in the northern areas. In the past few years, however, development of storage on the South Saskatchewan River has made hydro-electric power available in the southern part of the province and no new thermal capacity is contemplated at present. The incidence of vast fuel resources accounts for the emphasis on thermal power generation in *Alberta*; the province's largest thermal plants are the 330,000-kw. gas turbine and steam station at Edmonton and the 282,000-kw. Wabamun steam station.

More than half of *British Columbia's* thermal generating capacity is installed in three plants located in the Vancouver area. The capacity of the largest of these plants, the 300,000-kw. Burrard generating station, is expected to be increased to 600,000 kw. by 1967 but the addition of a further 300,000 kw. scheduled at Burrard may be delayed by the availability of Peace River power in 1968.

Thermal-electric energy satisfies most of the power requirements in the *Northwest Territories*; in *Yukon Territory*, hydro is the larger contributor. Most of the thermal-electric energy in the Territories is generated by small diesel units.

Nuclear Thermal Power.—Commercial electric power generated from the heat of nuclear reaction became a reality in Canada in 1962 when the 20,000-kw. Nuclear Power Demonstration station at Rolphton, Ont., fed power for the first time into a distribution system in Ontario. The NPD station is the forerunner in a series of large nuclear stations that will shoulder more and more of Canada's rapidly growing power loads.

Research into reactor design and the application of nuclear energy in the electric power field are among the more important responsibilities of Atomic Energy of Canada Limited, a Crown company incorporated in 1952 (see also pp. 398-401). AECL has concentrated its efforts on the development of the CANDU reactor, which uses natural uranium as a fuel and heavy water as the moderator. By using heavy water as the moderator, a high energy yield can be obtained from natural uranium and, since natural uranium is a low-cost nuclear fuel, the cost of fuel is a minor component in the cost of producing power. Natural uranium has the added attraction of being available in commercial quantities in Canada.

The Canadian nuclear power reactor also offers the simplest of nuclear fuel cycles. Sufficient energy can be extracted from the fuel so that the economics of the system do not require a value to be placed on the spent fuel. There is, therefore, no need to carry out costly chemical processing of the spent fuel unless the worth of the remaining contained fissile material becomes sufficiently high to make chemical processing an economic proposition. The spent fuel is an ideal package for simple underwater storage and no large volume of highly radio-active liquids from a chemical processing plant has to be handled and contained.

The NPD station has been used extensively to demonstrate the ability of the system to operate at a high capacity factor and to determine the nature and predictability of outages. Fuel changes while the system is in operation have become routine and a considerable amount of research into the sources of heavy water losses has been carried out. As a result of this research, losses have been cut considerably and the NPD station is demonstrating that a very acceptable heavy water loss rate is attainable.

At Douglas Point on the shore of Lake Huron, the country's first full-scale nuclear power station is nearing completion. The station, being built with the co-operation of Ontario Hydro, will house a 200,000-kw. CANDU reactor and will produce first power in 1965. Experience gained in the design and operation of this reactor has encouraged the development of even larger units and plans have been announced for the construction of a two-unit, 1,080,000-kw. nuclear station to be built near Toronto, with in-service dates for the two units scheduled for 1970 and 1971.

To complement the research facilities at Chalk River, Ont., AECL is building a nuclear research establishment at Whiteshell, about 65 miles northeast of Winnipeg, Man. The first major experimental facility will be an organic cooled, heavy-water-moderated reactor with an initial design power output of 40,000 kw.

Section 2.—Progress in Construction of Generating Facilities, 1964

In 1964, a net total of 754,000 kw. of electric power generating capacity was installed in Canada to help meet the nation's constantly growing requirements for electric power; the total included 481,000 kw. of thermal capacity and 273,000 kw. of hydro. This new capacity put into service boosted the nation's total installed hydro generating capacity to 20,300,000 kw. and total installed thermal capacity to 6,800,000 kw. On the basis of current forecasts, a total of 2,300,000 kw. of additional capacity should come into operation in 1965. Hydro will account for 1,400,000 kw. and thermal for the remaining 900,000 kw. Looking farther ahead, new capacity currently under construction or scheduled for service within the next few years should yield an additional 15,100,000 kw., of which 9,200,000 kw. will be hydro and the remainder thermal. These estimates do not include any of the vast potential that will eventually be developed on the Churchill (Labrador), Columbia and Nelson Rivers and on a number of other major river systems in Canada.

Atlantic Provinces.—In *Newfoundland*, the Newfoundland and Labrador Power Commission has been given responsibility for developing the Bay d'Espoir site on the Salmon River, generating capacity at which will total 459,000 kw. in six units; three units will be in service by the end of 1967. Development of the huge hydro potential of Churchill Falls on the Churchill River in Labrador (formerly Grand Falls on the Hamilton River) awaits an agreement concerning transmission routes to potential markets. For full development of the 1,040-foot fall, Hamilton Falls Power Corporation Limited proposes an installation of ten units, each rated at 391,400 kw. Early in 1964, United Towns Electric Company Limited completed construction at Salt Pond near Burin on Burin Peninsula of a thermal plant housing three diesel units, each rated at 500 kw. Elsewhere in the province, new thermal capacity totalling 5,110 kw. was placed in service during the year.

In *Nova Scotia*, the Nova Scotia Light and Power Company Limited plans to put a 100,000-kw. unit into service at the Tufts Cove thermal station near Dartmouth. This is the first of a multi-unit development that may eventually exceed 500,000 kw. in capacity. Two hydro developments at Lequille on the Allain River and at Alpena on the Nictaux River, with an estimated total capacity of 16,200 kw., are being considered by the Company. Under construction for the Nova Scotia Power Commission are two developments at Riverdale on the Sissiboo River and at Wreck Cove on Wreck Cove Brook, which would have a total generating capacity of 73,500 kw. Seaboard Power Corporation Limited is expanding its 72,000-kw. steam plant at Glace Bay by the addition of a 36,000-kw. unit scheduled for early 1966. The unit will be owned by the Nova Scotia Power Commission and will supply power to the heavy-water plant under construction in the area. Imperial Oil Company's 3,750-kw. thermal plant at Dartmouth is expected to be in service in mid-1965.

In *New Brunswick*, work on the New Brunswick Electric Power Commission hydro plant at Sisson on the Tobique River continued in 1964; the plant will house a single 10,000-kw. unit and be in operation in September 1965. The first two units at the Commission's hydro station at Mactaquac on the St. John River are expected to go into service early in 1968; the plant, designed for six 100,000-kw. units, will be completed by 1976. The capacity of the Courtenay Bay steam plant at East Saint John is being extended to 160,840 kw. by the addition of a 13,340-kw. unit in early 1965 and a 100,000-kw. unit in

July 1966. The Maine and New Brunswick Electric Power Company Limited hydro plant at Tinker on the Aroostook River will be more than tripled in capacity when a new 24,600-kw. unit goes into service in April 1965.

Quebec.—In 1963, the Government of Quebec, through the Quebec Hydro-Electric Commission, nationalized the assets of the province's major private power utilities. By the end of 1964 the takeover had involved, in addition to the privately owned utilities, 45 electric co-operatives and three municipal electric systems.

The province's ambitious program of power development proceeded on schedule in 1964. Available year-end information indicates a total of 6,426,400 kw. of new generating capacity, most of it hydro, either under construction or scheduled for construction; of this total, 897,800 kw. is scheduled to go into service in 1965. During the year, Hydro-Quebec put 199,000 kw. of new hydro capacity into service at two plants on the Ottawa River. At Carillon, four 46,750-kw. units were installed, completing the development of the station, which has a total capacity of 654,500 kw. in 14 units. A 12,000-kw. unit installed at the Rapid II plant on the Upper Ottawa River brought the total plant capacity to 48,000 kw. A new hydro station being built at Rapides des Îles on the Quinze River will supply power to the rapidly developing northwestern region of the province; two 26,250-kw. units will go into service in 1966 and two similar units will be installed as local power demands require. The station will eventually be operated by remote control.

The major component in Quebec's current program of hydro expansion is the massive Manicouagan-Outardes development now under construction. The project involves harnessing the power of the two rivers by building a series of six hydro plants and extending the capacities of two existing plants to provide a total of over 5,500,000 kw. of new generating capacity. Manic 2, eleven miles from the mouth of the Manicouagan River, will be the first of the new plants to supply power. Eight units will provide a total capacity of 1,016,000 kw., five of which will be in service in 1965, the sixth and seventh in 1966 and the eighth in 1967. By the end of 1964, concreting was more than half completed on the buttressed, multi-arch dam at Manic 5. The dam will be over 4,000 feet long and some 703 feet high at the highest point above bedrock, one of the highest and most massive dams of its kind in the world. The reservoir at Manic 5 will store 115,000,000 acre-feet of water and will take eight years to fill. The power plant, designed for eight generators each rated at 168,000 kw., will produce first power in 1970.

Excavation for the powerhouse and penstocks at the Manic 1 site was completed in 1964. Manic 1 will have a total generating capacity of 180,000 kw. in three units and will go into service in 1966. Preliminary work was progressing at Manic 3 and at Outardes 3 and 4. Manic 3 is expected to house seven units with a total capacity of 1,123,000 kw.; first power is scheduled for 1972. Outardes 3 is designed for a capacity of 761,600 kw. in four units; Outardes 4 is designed for 644,000 kw. in four units. Initial operation for the two Outardes River stations is planned for November 1968. Flow regulation on the Manicouagan and Outardes Rivers will permit a total increase of 502,500 kw. in the capacities of two existing plants.

Energy for the Manicouagan-Outardes developments will be fed to load centres in the province via three 735-kv. transmission lines. The operating voltage of 735 kv. is the highest planned for long-distance transmission in Canada and is one of the highest in use anywhere in the world.

The Commission's new steam plant at Tracy near Sorel went into operation in 1964 with one unit rated at 150,000 kw. A second unit will be added in 1965 and the station will reach its full capacity of 600,000 kw. in four units by 1967. Plans for a 300,000-kw., two-unit thermal plant for the Gaspé Peninsula have been announced. The new station is scheduled for operation in 1970.

Ontario.—During 1964, the development program of The Hydro-Electric Commission of Ontario included among its main features construction of three new hydro stations,

construction of a nuclear-thermal station and the extension of an existing conventional thermal station. The hydro stations under construction are the Harmon and Kipling stations on the Matagami River and Mountain Chute on the Madawaska River. The nuclear-thermal plant is at Douglas Point on the shore of Lake Huron and the conventional thermal station being extended is the Lakeview generating station near Toronto. At the Harmon development, two 64,600-kw. units will go into service in mid-1965; the two additional units provided for have not been scheduled. At the Kipling site, three miles downstream from Harmon, two 62,700-kw. units will be in service by mid-1966; two additional units have also been provided for at this site. Preliminary work was begun in 1964 at the Mountain Chute site, where power will be supplied by two 80,000-kw. units scheduled for commissioning in late 1967.

Installation of the major components at the 200,000-kw. nuclear station at Douglas Point was almost complete at the end of 1964. This station, being built by Ontario Hydro with the co-operation of Atomic Energy of Canada Limited, will go into service in late 1965. Ontario Hydro is to proceed with design and construction of a large nuclear plant in southern Ontario. The preliminary schedule calls for the installation of two 540,000-kw. units to be in service in 1970 and 1971, respectively, and the eventual installation of additional units.

A third 300,000-kw. unit was installed in 1964 in the Lakeview generating station, just west of Metropolitan Toronto, and five more units are scheduled for initial operation between 1965 and 1968 to bring the station's capacity to 2,400,000 kw. A large conventional thermal station, to be known as the Lambton generating station, is to be built by Ontario Hydro near Courtright, about 14 miles south of Sarnia. It will ultimately house four 500,000-kw. units, one of which is scheduled for initial operation in each year from 1968 to 1971, inclusive.

In December 1964, Great Lakes Power Corporation Limited completed the installation of a 15,000-kw. unit at a new plant located about six miles upstream from the mouth of the Montreal River at Lake Superior.

Prairie Provinces.—In *Manitoba*, construction at the Grand Rapids site on the Saskatchewan River continued in 1964. At the site, being developed by Manitoba Hydro, all the main structures were essentially complete and three 100,000-kw. units were scheduled for service during 1965. Investigation of the power potential of the Nelson River continued during the year and the information obtained is being used to determine the capital cost of power development at Nelson River hydro sites.

In *Saskatchewan*, where previously the emphasis was on power from thermal sources, hydro-electric capacity continues to increase. The first hydro power generated in the province to serve the Saskatchewan Power Corporation's distribution network became available in 1963 from the generators at Squaw Rapids on the Saskatchewan River. By the spring of 1964, six generators at Squaw Rapids provided a total capacity of 201,000 kw. and two additional units of 43,000 kw. each are scheduled to be commissioned in 1966 and 1967, respectively. At the South Saskatchewan River project near Outlook, being built by the Prairie Farm Rehabilitation Administration for irrigation purposes, Saskatchewan Power Corporation will install two 62,200-kw. generators for service in September 1968 and a third for service in 1969. The power site is known as Coteau Creek.

In *Alberta*, construction of the main features of the Calgary Power Ltd. Big Bend hydro development on the Brazeau River was in its final stages at the end of 1964. At this site, water will be carried from the storage reservoir via a 12-mile canal to the penstocks which will convey the water to the turbines. A pumping-generating plant is incorporated in the development at the outlet of the storage reservoir. By the end of 1964, two of the four penstocks were in place, the first turbine-generator unit was installed in the powerhouse ready for operation early in 1965, and work was under way on the installation of a second unit scheduled for service in late 1966. The generator for the first unit is rated

at 144,000 kw. and that for the second unit at approximately 175,000 kw. The pumping-generating station is designed for two units, each rated at 9,720 kw. The Company's Wabamun thermal plant is to be extended to house an additional 300,000 kw. of generating capacity for operation in late 1967, bringing the total capacity of the plant to 582,000 kw.

Canadian Utilities Limited in 1964 added a second 32,000-kw. coal-fired steam turbo-generator at their Battle River plant at Forestburg and tenders were called for the turbine component of a 75,000-kw. coal-fired unit scheduled for commissioning in 1968. A study to determine the hydro-electric potential of the Smoky River in the Grande Prairie-Peace River area indicates that a development of about 400,000 kw. may be feasible.

British Columbia.—Substantial progress on the British Columbia Hydro and Power Authority's Portage Mountain hydro development on the Peace River was reported in 1964. The development is planned for ten units with a total capacity of 2,270,000 kw., three of which are scheduled for service by the autumn of 1968. In 1964, the three 48-foot-diameter, 2,500-foot-long tunnels, built to carry the river past the construction site, successfully handled the largest flow on record of the Peace River.

During the year, Canada and the United States exchanged instruments of ratification of the Columbia River Treaty and Protocol, clearing the way for construction of the three storage dams that will regulate the flow of the Columbia River for power and flood prevention purposes. Under the terms of the Treaty, Canada is entitled to one half the power benefits accruing in the United States from the regulation of 15,500,000 acre-feet of water stored in Canada behind the proposed Duncan Lake, Arrow and Mica Dams and one half the value of the estimated flood damage prevented in the United States through the operation of the proposed dams for flood control. Under the terms of the Treaty, the three storage dams are required to be in operation by 1973.

The third 150,000-kw. unit at British Columbia Hydro's Burrard thermal station is scheduled for service early in 1965 and a fourth unit will be in service by September 1967. The ultimate capacity at Burrard will be 900,000 kw. in six units.

Yukon and Northwest Territories.—Construction work at the Northern Canada Power Commission's Twin Gorges hydro station on the Taltson River progressed on schedule during 1964. The station, some 35 miles northeast of Fort Smith, N.W.T., will house a single 18,000-kw. unit which is scheduled for service in October 1965. New thermal capacity added in the Northwest Territories in 1964 amounted to 460 kw., and in Yukon Territory, 110 kw.

Section 3.—Power Generating Capability and Load Requirements

Power generating *capability*, as covered in this Section, is the measurement of the available generating resources of all hydro and thermal facilities at the time of the one-hour firm peak load for each reporting company, and is not equal to the *capacity* of such generating facilities. For example, a hydro plant may have a capacity of 100,000 kw. but if, at the time of peak load, the water available for generation is only 80 p.c. of the plant capacity requirements, then its capability is 80,000 kw.

Total generating capability has grown at a rapid rate since 1954. The annual rate of increase was 6.9 p.c. in the ten-year period 1954-64 and 3.9 p.c. in the four-year period 1960-64. In comparison, the forecast rate of growth for the years 1965-69 is 7.4 p.c.; thermal generating capability is expected to grow at the average rate of 11.8 p.c. a year in the forecast period compared with 14.2 p.c. in the period 1954-64 but hydro-electric capability is expected to increase at 6.2 p.c. a year compared with 5.5 p.c. in the 1955-64 period. This increased rate of growth in hydro generating capability in the forecast period is attributable to the large power projects now under construction in relatively remote areas which will be completed within the next few years.

Among the provinces, Quebec has the largest generating capability, followed by Ontario, British Columbia and Alberta. Quebec also has the largest hydro-electric generating capability, followed by Ontario and British Columbia, but Ontario has the largest thermal capability, followed by Alberta and British Columbia. The first nuclear capability is scheduled in Ontario for late 1965.

The largest absolute growth in generating capability for the forecast years is indicated for Quebec amounting to 3,683,000 kw., followed by Ontario 3,517,000 kw., British Columbia 1,752,000 kw., and Alberta 822,000 kw. Quebec will meet most of its increased generating capability by adding 3,140,000 kw. in hydro capability and 543,000 kw. in thermal capability. Ontario will add 398,000 kw. hydro and 3,119,000 kw. thermal, the latter including 200,000 kw. nuclear, and British Columbia will add 1,374,000 kw. hydro and 378,000 kw. thermal. Thus, it is apparent that thermal capability is becoming of greater importance, partly because of decreasing availability of hydro resources in provinces such as Ontario and partly because technological advances have made possible much more efficient use of thermal fuels in the operation of thermal base load plants.

Firm power peak load is the measure of the maximum average net kilowatt demand of one-hour duration from all loads, including commercial, residential, farm and industrial consumers as well as the line losses. Such load demand increased at the rate of 7.1 p.c. a year from 1954 to 1964 but only 6.9 p.c. a year from 1960 to 1964; peak load demand is forecast to increase at the average rate of 6.9 p.c. a year in the period 1965-69. As a result of the rapid increase in generating capability and the somewhat slower but steady increase in the peak loads, together with the slight reduction in deliveries of firm power to the United States, the indicated reserve on net generating capability increased each year from 1954 to 1964, with the exception of 1961, 1963 and 1964. The forecast is for increases from 1965 to 1969 with the exception of 1966. The reserve ratio as a percentage of firm power peak load, which reached a high of 28.2 p.c. in 1960, is expected to decrease to 18.9 p.c. in 1969.

4.—Net Generating Capability, by Province, 1964

(Thousand kilowatts)

Type of Generating Facility	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.
Hydro-electric.....	442	—	141	222	9,453	5,603
Thermal-electric—						
Steam.....	45	51	383	305	192	2,379
Internal combustion.....	11	7	3	7	15	8
Gas turbine.....	—	—	—	—	36	—
Totals.....	498	58	527	534	9,696	7,990
	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Canada
Hydro-electric.....	735	309	326	2,689	44	19,964
Thermal-electric—						
Steam.....	291	529	748	498	1	5,422
Internal combustion.....	8	35	31	117	13	255
Gas turbine.....	—	39	130	177	2	384
Totals.....	1,034	912	1,235	3,481	60	26,025

5.—Capacity and Firm Power Peak Load Requirements, Actual 1951 and 1958-64 and Forecast 1965-69
(Thousand kilowatts)

Item	Actual								Forecast				
	1951	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Net Generating Capability—													
Hydro-electric.....	9,044	15,912	17,086	18,516	18,389	18,651	19,666	19,964	21,203	22,259	22,886	25,058	26,551
Steam—Conventional.....					3,773 ^r	4,596	5,194	5,422	6,348	6,976	8,146	8,869	10,096
Nuclear.....	1,032	2,716	3,119	3,824 ^r	—	—	—	—	—	—	200	200	200
Internal combustion.....					240	251	236	255	260	268	271	275	279
Gas turbine.....					351	371	382	384	384	441	441	442	442
Totals, Net Generating Capability.....	10,076	18,628	20,205	22,340	22,753^r	23,869	25,478	26,025	28,285	29,944	31,944	34,844	37,568
Receipts of firm power from United States.....	—	—	—	—	2	4	2	2	2	2	2	2	2
Deliveries of firm power to United States.....	175	152	152	166	146	121	122	129	92	94	96	100	104
Totals, Net Capability.....	9,901	18,476	20,053	22,174	22,609^r	23,752	25,358	25,898	28,195	29,852	31,850	34,746	37,466
Peak Loads—													
Firm power peak loads within Canada.....	8,989	15,568	16,201	17,264	18,353	18,972	20,757 ^r	22,506	24,392	26,176	27,926	29,681	31,440
Indicated shortages.....	321	—	—	—	—	—	28	13	30	45	53	59	67
Totals, Indicated Peak Loads within Canada	9,310	15,568	16,201	17,264	18,353	18,972	20,785^r	22,519	24,422	26,221	27,979	29,740	31,507
Indicated Reserve.....	591	2,908	3,852	4,910	4,256^r	4,780	4,573^r	3,379	3,773	3,631	3,871	5,006	5,959

Section 4.—Electric Power Statistics

Electric power statistics presented in this Section are based on reports of all electrical utilities and all industrial establishments that generate energy regardless of whether or not any is sold and therefore show the total production and distribution of electric energy in Canada. Utilities are defined as companies, commissions, municipalities or individuals whose primary function is to sell most of the electric energy that they have either generated or purchased. Industrial establishments are defined as companies or individuals that generate electricity mainly for use in their own plants.

The current series of electric power statistics dates back to 1956. Earlier reports, entitled *Central Electric Stations*, were concerned solely with the electrical utility industry and hence excluded statistics relating to power produced by industrial establishments for their own use, although power sold by such establishments was included.

The figures of total water and thermal power generated for the years 1951-55 shown in Table 6 are compiled on the old basis, figures for 1956 are shown on both bases for comparative purposes, and those for later years are on the new basis.

6.—Electric Energy Generated, by Type of Station 1951-63, and by Province 1962 and 1963

Year and Province or Territory	Generated by—		Total	Year and Province or Territory	Generated by—		Total
	Water Power	Thermal Power			Water Power	Thermal Power	
	'000 kwh.	'000 kwh.	'000 kwh.		'000 kwh.	'000 kwh.	'000 kwh.
1951.....	52,955,002	1,896,842	54,851,844	1957.....	83,373,220	7,668,860	91,042,080
1952.....	57,023,530	2,385,668	59,409,198	1958.....	90,509,200	6,975,089	97,484,289
1953.....	58,926,462	3,934,465	62,860,927	1959.....	97,039,830	7,588,653	104,628,483
1954.....	62,572,316	3,324,124	65,936,440	1960.....	105,882,773	8,495,160	114,377,933
1955.....	69,478,003	3,432,589	72,910,592	1961.....	103,919,241	9,794,077	113,713,318
1956.....	73,524,583	4,479,770	78,004,353	1962.....	104,050,724	13,418,024	117,468,748
1956 ¹	81,839,968	6,543,333	88,383,301	1963.....	103,831,866	18,406,328	122,238,194
1962				1963			
Nfld.....	1,550,516	112,135	1,662,651	Nfld.....	1,946,874	122,730	2,069,604
P.E.I.....	407	101,347	101,754	P.E.I.....	—	111,140	111,140
N.S.....	715,400	1,233,689	1,949,089	N.S.....	804,913	1,331,015	2,135,928
N.B.....	1,213,475	961,180	2,174,655	N.B.....	1,279,307	1,031,449	2,310,756
Que.....	49,907,955	351,347	50,259,302	Que.....	49,555,200	9,783,572	49,933,772
Ont.....	30,912,426	4,377,429	35,289,855	Ont.....	29,139,855	8,469,207	37,609,062
Man.....	4,220,586	146,019	4,366,605	Man.....	4,737,458	117,751	4,855,209
Sask.....	706,739	1,981,635	2,688,374	Sask.....	988,978	2,002,398	2,991,376
Alta.....	956,195	3,137,192	4,093,387	Alta.....	881,167	3,650,078	4,531,245
B.C.....	13,668,585	983,492	14,652,077	B.C.....	14,297,833	1,153,035	15,450,868
Yukon and N.W.T.....	198,440	32,550	230,999	Yukon and N.W.T.....	200,281	38,953	239,234
Canada, 1962 ...	104,050,724	13,418,024	117,468,748	Canada, 1963 ...	103,831,866	18,406,328	122,238,194

¹ New series, see immediately preceding text.

Of the total generation in 1963 of 122,238,194,000 kwh., 84.9 p.c. was produced from water power and 15.1 p.c. was generated thermally; the proportions differed somewhat among provinces as shown in the following statement.

Province	Hydro	Thermal	Province or Territory	Hydro	Thermal
	p.c.	p.c.		p.c.	p.c.
Newfoundland.....	94.0	6.0	Manitoba.....	97.6	2.4
Prince Edward Island.....	—	100.0	Saskatchewan.....	33.1	66.9
Nova Scotia.....	37.7	62.3	Alberta.....	19.4	80.6
New Brunswick.....	55.4	44.6	British Columbia.....	92.5	7.5
Quebec.....	99.2	0.8	Yukon and N.W.T.....	83.7	16.3
Ontario.....	77.5	22.5			

Table 7 gives summary figures of power production and distribution classified by province, and Tables 8 and 9 give figures classified by type of production establishment. Total installed capacity in Canada amounted to 26,300,644 kw. in 1963, an increase of 1,333,644 kw. over 1962. Of the 1963 total, 21,200,117 kw. were accounted for by utilities and the remainder by industrial establishments. During 1962 and 1963 total sales to ultimate customers amounted to 84,331,799,000 kwh. and 89,209,338,000 kwh., respectively, of which 97.2 p.c. was sold each year by utilities.

Sales to power customers made up 59.4 p.c. of the total in 1962 and 58.4 p.c. in 1963, sales to domestic and farm customers were 28.1 p.c. and 28.4 p.c., and commercial sales 11.5 p.c. and 12.2 p.c. in the respective years. Exports to the United States in 1963 amounted to 3,612,834,000 kwh. compared with 4,112,411,000 kwh. in 1962.

7.—Summary Electric Power Statistics, by Province, 1962 and 1963

Year and Province or Territory	Installed Generating Capacity	Energy Made Available in Canada	Exported to U.S.A.	Ultimate Customers	Total Revenue from Ultimate Customers	Electrical Utilities	
						Employees	Salaries and Wages
	kw.	'000 kwh.	'000 kwh.	No.	\$'000	No.	\$'000
1962							
Newfoundland.....	418,137	1,581,251	—	74,394	13,244	662	2,529
Prince Edward Island..	39,156	101,754	—	24,607	3,165	173	701
Nova Scotia.....	520,848	1,935,746	—	209,271	32,772	1,558	6,706
New Brunswick.....	479,750	1,979,852	246,344	166,354	25,260	1,295	4,976
Quebec.....	9,320,325	44,160,040	299,468	1,501,326	237,233	10,850	56,927
Ontario.....	8,179,367	40,140,855	3,550,796	2,065,146	340,255	16,026	91,996
Manitoba.....	1,084,309	5,173,011	12	304,376	44,207	2,604	12,626
Saskatchewan.....	782,230	2,043,815	—	271,188	42,463	2,166	9,524
Alberta.....	1,081,156	4,126,598	—	384,112	62,373	1,738	9,734
British Columbia.....	3,000,918	14,661,125	15,791	532,866	103,397	2,673	14,972
Yukon and N.W.T.....	60,804	230,999	—	5,763	4,110	258	1,297
Canada, 1962.....	24,967,000	116,135,046	4,112,411	5,539,403	908,479	40,003	211,988
1963							
Newfoundland.....	513,047	1,998,398	—	77,933	16,111	762	2,973
Prince Edward Island..	57,391	111,140	—	24,466	3,333	172	735
Nova Scotia.....	530,198	2,122,193	—	213,361	34,476	1,648	6,952
New Brunswick.....	530,925	2,115,007	246,872	162,751	26,453	1,007	5,470
Quebec.....	9,567,017	44,832,194	24,781	1,527,615	256,536	11,145	60,432
Ontario.....	8,456,493	42,077,647	3,316,979	2,116,952	361,193	16,266	94,700
Manitoba.....	1,090,097	5,654,323	15	298,436	47,181	2,631	13,655
Saskatchewan.....	866,841	2,379,273	—	276,397	46,615	2,270	13,131
Alberta.....	1,163,643	4,560,283	—	396,430	65,913	1,861	10,443
British Columbia.....	3,461,074	15,419,951	24,187	554,624	104,498	2,720	16,363
Yukon and N.W.T.....	63,918	239,234	—	5,889	3,853	262	1,448
Canada, 1963.....	26,309,644	121,509,643	3,612,834	5,654,854	966,162	41,344	226,302

8.—Summary Electric Power Statistics, by Type of Establishment, 1962 and 1963

Year and Item	Electrical Utilities			Industrial Establishments	Total
	Publicly Operated	Privately Operated	Total		
1962					
Installed generator capacity kw.	15,340,490	5,042,473	20,382,963	4,584,037	24,967,000
Energy generated '000 kwh.	66,715,796	25,380,300	92,096,096	25,372,652	117,468,748
Hydro "	58,662,737	22,680,823	81,343,560	22,707,164	104,050,724
Thermal "	8,053,059	2,699,477	10,752,536	2,665,488	13,418,024
Energy Made Available in Canada . . '000 kwh.	..	..	..	..	116,135,046
Disposal of energy in Canada '000 kwh.	64,154,920	28,125,794	92,280,714	383,435	92,664,149
Energy exported to United States "	3,475,986	488,672	3,964,658	147,753	4,112,411
Ultimate customers in Canada No.	4,234,422	1,297,053	5,531,475	7,928	5,539,403
Domestic and farm "	3,729,488	1,127,731	4,857,219	7,245	4,864,464
Commercial "	426,513	132,496	559,009	619	559,628
Power "	74,436	34,899	109,335	48	109,383
Street lighting "	3,985	1,927	5,912	16	5,928
Revenue from ultimate customers \$'000	673,719	232,216	905,935	2,544	908,479
Revenue from exports to United States "	4,662	2,702	7,364	1,248	8,612
Employees No.	30,577	9,426	40,003	..	..
Salaries and wages \$'000	164,927	47,061	211,988	..	..
1963					
Installed generator capacity kw.	18,640,811	2,559,306	21,200,117	5,100,527	26,300,644
Energy generated '000 kwh.	81,996,546	11,504,680	93,501,226	28,736,968	122,238,194
Hydro "	69,667,658	8,446,103	78,112,761	25,719,105	103,831,866
Thermal "	12,328,888	3,059,577	15,388,465	3,017,863	18,406,328
Energy Made Available in Canada . . '000 kwh.	..	..	..	..	121,509,643
Disposal of energy in Canada '000 kwh.	86,583,184	10,129,883	96,713,067	2,601,593	99,314,660
Energy exported to United States "	2,782,096	683,568	3,465,664	147,170	3,612,834
Ultimate customers in Canada No.	5,086,798	559,748	5,646,546	8,308	5,654,854
Domestic and farm "	4,493,729	473,723	4,967,452	7,614	4,975,066
Commercial "	507,930	67,357	575,287	642	575,929
Power "	79,004	17,733	96,737	37	96,774
Street lighting "	6,135	935	7,070	15	7,085
Revenue from ultimate customers \$'000	845,745	112,530	958,275	7,887	966,162
Revenue from exports to United States "	3,039	2,779	5,818	835	6,653
Employees No.	36,768	4,576	41,344	..	..
Salaries and wages \$'000	203,413	22,889	226,302	..	..

**9.—Electric Power Generated classified by Type of Establishment, by Province,
1962 and 1963**

Year and Province or Territory	Electrical Utilities		Industrial Establish- ments	Total
	Publicly Operated	Privately Operated		
	'000 kwh.	'000 kwh.	'000 kwh.	'000 kwh.
1962				
Newfoundland.....	170	1,223,877	438,604	1,662,651
Prince Edward Island.....	7,668	94,086	—	101,754
Nova Scotia.....	691,718	1,083,303	174,068	1,949,089
New Brunswick.....	1,518,783	71,050	584,822	2,174,655
Quebec.....	18,451,402	17,873,550	13,934,350	50,259,302
Ontario.....	31,809,348	1,293,262	2,187,245	35,289,855
Manitoba.....	4,304,694	—	61,911	4,366,605
Saskatchewan.....	1,944,660	649,374	94,340	2,688,374
Alberta.....	1,185,600	2,581,671	326,116	4,093,387
British Columbia.....	6,638,664	493,222	7,520,191	14,652,077
Yukon and Northwest Territories.....	163,089	16,905	51,005	230,999
Canada, 1962.....	66,715,796	25,380,300	25,372,652	117,468,748
1963				
Newfoundland.....	16,964	1,604,452	448,188	2,069,604
Prince Edward Island.....	8,750	102,390	—	111,140
Nova Scotia.....	768,937	1,115,602	251,389	2,135,928
New Brunswick.....	1,612,123	71,150	627,483	2,310,756
Quebec.....	29,730,023	3,439,290	16,764,459	49,933,772
Ontario.....	34,328,096	1,173,913	2,107,053	37,609,062
Manitoba.....	4,785,458	—	69,751	4,855,209
Saskatchewan.....	2,221,903	653,092	116,381	2,991,376
Alberta.....	1,277,686	2,863,636	389,923	4,531,245
British Columbia.....	7,078,290	463,522	7,909,056	15,450,868
Yukon and Northwest Territories.....	168,316	17,633	53,285	239,234
Canada, 1963.....	81,996,516	11,504,680	28,736,968	122,238,194

Average domestic and farm consumption rose from 4,873 kwh. in 1962 to 5,084 kwh. in 1963. Among the provinces, the averages in 1963 varied from a low of 2,023 kwh. in Prince Edward Island to a high of 6,630 kwh. in Manitoba. For domestic and farm customers the average annual bill was \$77.10 in 1963 as against \$75.24 in 1962, an increase of 2.5 p.c.

Although many utilities do not keep records on farm customers separate from other domestic customers, the data reported on farm service indicate that the average consumption rose from 5,204 kwh. per customer in 1962 to 5,985 kwh. in 1963 and the average bill from \$106.55 to \$117.16.

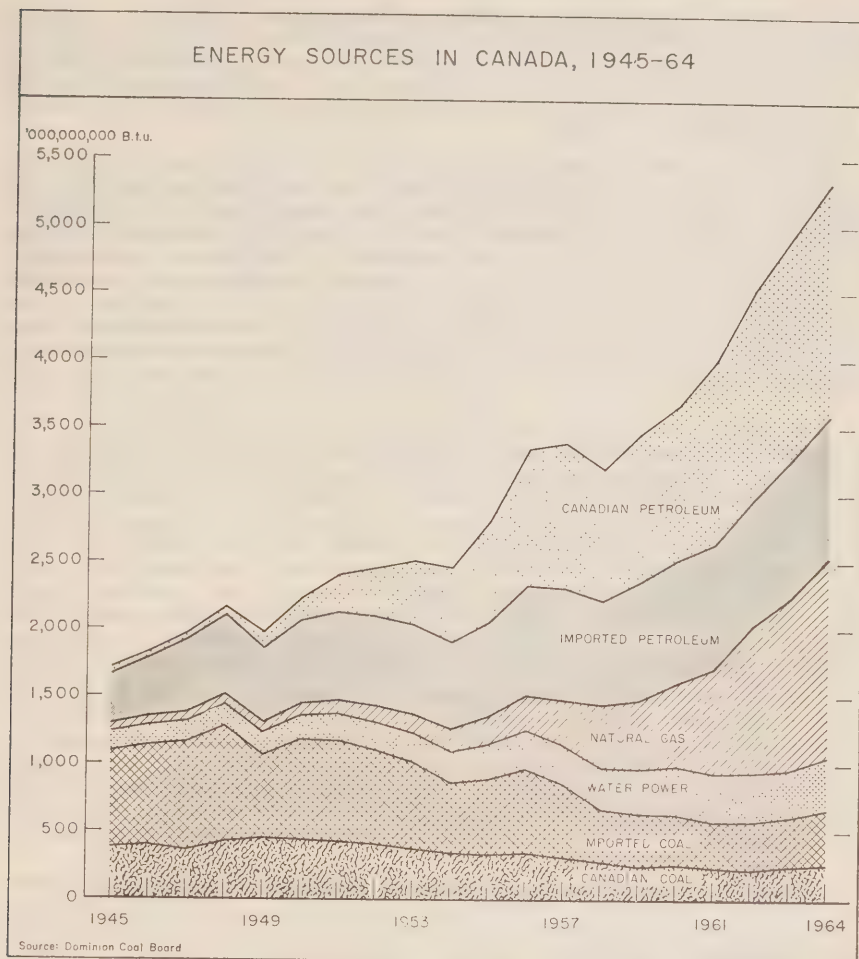
10.—Domestic and Farm Service by Electric Utilities and Industrial Establishments, 1959-63

Item	1959	1960	1961	1962	1963
Customers..... No.	4,381,564	4,542,780	4,716,819	4,864,464	4,980,351
Kilowatt-hours sold..... '000	19,007,111	20,391,857	21,979,672	23,704,259	25,321,606
Revenue received..... \$'000	305,662	325,946	346,807	365,990	383,983
Kilowatt-hours per customer..... No.	4,338	4,489	4,660	4,873	5,084
Average annual bill..... \$	69.76	71.75	73.53	75.24	77.10
Revenue per kwh..... cts.	1.61	1.60	1.58	1.54	1.52

In 1963, natural gas accounted for 22.4 p.c. of thermal generation by utilities, coal for 68.9 p.c., petroleum fuels for 8.1 p.c. and nuclear fuel for 0.6 p.c.; corresponding proportions in 1962 were 28.1 p.c., 60.0 p.c., 11.7 p.c. and 0.2 p.c., respectively.

11.—Fuel Used by Electrical Utilities to Generate Power, by Province, 1962 and 1963

Year and Province or Territory	Coal		Petroleum Fuels		Gas	
	Quantity	Value	Quantity	Value	Quantity	Value
	tons	\$	Imp. gal.	\$	Mcf.	\$
1962						
Newfoundland.....	—	—	3,678,261	509,809	—	—
Prince Edward Island.....	—	—	8,737,592	582,990	—	—
Nova Scotia.....	514,737	5,448,621	11,236,948	700,678	—	—
New Brunswick.....	121,046	1,132,660	18,236,460	1,169,528	—	—
Quebec.....	—	—	5,264,005	841,286	—	—
Ontario.....	1,492,590	13,228,599	2,578,909	338,549	144,937	51,833
Manitoba.....	111,272	450,098	1,403,940	232,244	284,082	40,840
Saskatchewan.....	1,129,242	1,983,035	26,496,084	1,540,881	8,998,982	1,309,457
Alberta.....	356,118	516,020	4,093,749	240,986	30,901,999	4,707,244
British Columbia.....	—	—	5,879,452	906,665	3,320,387	850,964
Yukon and Northwest Territories...	—	—	1,813,345	453,515	—	—
Canada, 1962	3,725,005	22,759,033	89,419,345	7,517,131	43,650,387	6,960,338
1963						
Newfoundland.....	—	—	5,932,462	636,219	—	—
Prince Edward Island.....	—	—	9,571,919	636,868	—	—
Nova Scotia.....	533,839	5,574,994	9,249,872	701,454	—	—
New Brunswick.....	106,812	989,556	22,082,760	1,476,006	—	—
Quebec.....	—	—	3,108,232	601,732	—	—
Ontario.....	2,807,380	25,797,887	5,449,112	876,322	128,815	49,026
Manitoba.....	66,336	254,673	5,627,957	948,595	154,618	25,417
Saskatchewan.....	1,053,750	2,079,238	21,610,718	1,247,389	11,158,712	1,700,110
Alberta.....	582,062	974,781	5,007,788	384,712	32,508,907	4,814,023
British Columbia.....	—	—	7,342,059	1,237,504	3,156,423	832,928
Yukon and Northwest Territories...	—	—	2,168,776	547,526	—	—
Canada, 1963	5,150,179	35,671,129	97,151,655	9,294,927	47,107,475	7,421,504



Section 5.—Public Ownership and Regulation of Electrical Utilities

Federal Government regulation of electrical utilities, particularly with respect to the export of electric power and the construction of lines over which such power is exported, falls within the jurisdiction of the National Energy Board established in November 1959 and concerned with all matters relating to energy resources within the jurisdiction of the Parliament of Canada (see Domestic Trade Chapter XXI, Part II, Section 4 for a brief survey of the functions and operations of the National Energy Board).

Power is generated in Canada by publicly and privately operated utilities and by industrial establishments. Table 9, p. 661, giving statistics by type of establishment, shows that 67 p.c. of the total electric power generated in 1963 was produced by publicly operated utilities, 9 p.c. by privately operated utilities and 24 p.c. by industrial establish-

ments. However, ownership differs greatly in different areas of the country. Quebec output until recently was predominantly from privately owned plants and in Ontario almost all electric power is produced by a publicly owned utility. Figures for 1962 and subsequent years will show a much greater proportion of publicly operated electrical utilities since they will reflect the recent provincial take-over of privately owned facilities in both British Columbia and Quebec.

Because of the absence of free market determination of prices and regulation of services in an industry that is semi-monopolistic, regulation of electrical utilities has been attempted in most provinces. Neither Newfoundland nor Prince Edward Island has a provincially operated electric power system, although in the former province a Commission, known as the Newfoundland Power Commission, was established by the provincial government in 1954 for the purpose of supplying electric power wherever needed throughout the province, particularly to rural areas. In Prince Edward Island, the town of Summerside and surrounding area is served by the municipally operated Town of Summerside Electric Light Department. The functions and activities of provincially operated electric power commissions in the other provinces are summarized in the following paragraphs.

Nova Scotia.—The Nova Scotia Power Commission was created under the Power Commission Act of 1919 with the function of supplying electric power and energy by the most economical means available. The Rural Electrification Act of 1937 greatly increased the possibilities for retail service by providing financial assistance to equalize cost and revenue of extensions approved by the Governor in Council. In 1941 an amendment to the Power Commission Act authorized the Commission, subject to the approval of the Governor in Council, to regulate and control the generation, transmission, distribution, supply and use of power in the province. Certain investigatory work is carried on in the province by the Federal Government in close association with the Commission, but the control of water resources is vested in the Crown and administered under the provisions of the Nova Scotia Water Act, 1919. The Commission pays regular fees for water rights.

The territory of the Commission extends over the entire province and embraces six systems which include 25 generating stations and more than 5,230 miles of transmission and distribution lines. Installed capacity at the end of November 1964 was 184,458 kw. of which 96,708 kw. was hydro capacity. New power plant construction under way in Nova Scotia during 1964 is outlined on p. 652. Financially, the Commission is self-supporting, repaying borrowings from revenue. The balance sheet at Nov. 30, 1964 showed total fixed assets of \$83,568,125, including work in progress amounting to \$4,251,896.

12.—Capacity and Output of the Nova Scotia Power Commission, Year Ended Nov. 30, 1964

System ¹ and First Year of Operation	Present Installed Capacity	Output	System ¹ and First Year of Operation	Present Installed Capacity	Output
	kw.	kwh.		kw.	kwh.
Western Network—			St. Margaret (1921).....	10,400	31,876,000
Harmony (1943).....	600	3,427,000	Mersey—		
Roseway (1930).....	888	3,396,150	Original development		
Gulch (1952).....	6,000	24,462,705	(1928).....	21,780	146,411,000
Ridge (1957).....	4,000	10,984,340	Cowie Falls (1938).....	7,200	47,398,920
Portable (diesel).....	200	150	Deep Brook (1950).....	9,000	54,971,600
Sissiboo (1960).....	6,000	28,007,540	Lower Great Brook (1955).....	4,500	23,664,740
Weymouth (1961).....	9,000	39,890,000	Canseau (diesel) (1937).....	700	20,680
Eastern Network—			Tusket (1929).....	2,160	12,462,960
Barrie Brook (1940).....	360	1,912,390	Cumberland—		
Dickie Brook (1948).....	3,800	10,720,400	Maccan (thermal) (1927).....	26,850	69,759,500
Malay Falls (1924).....	3,600	11,098,000			
Ruth Falls (1925).....	6,970	33,822,680			
Liscomb (1957).....	450	3,285,875			
Trenton (thermal) (1951).....	60,000	231,791,200			
			Totals	184,458	789,361,830

¹ Hydro unless otherwise noted.

New Brunswick.—The New Brunswick Electric Power Commission was incorporated under the Electric Power Act, 1920. Generating stations owned by the Commission at Mar. 31, 1965 were as follows:—

<u>Plant</u>	<u>Type</u>	<u>Capacity</u> kw.	<u>Plant</u>	<u>Type</u>	<u>Capacity</u> kw.
Grand Falls.....	Hydro....	63,000	Courtenay Bay.....	Steam.....	63,365
Musquash.....	Hydro....	6,960	Saint John (Dock St.)....	Steam.....	16,000
Tobique.....	Hydro....	20,000	Chatham.....	Steam.....	32,500
Beechwood.....	Hydro....	112,500	Grand Manan.....	Diesel.....	1,150
Milltown.....	Hydro....	3,036			
Grand Lake.....	Steam.....	101,250	TOTAL CAPACITY.....		419,761

All the above generating units with the exception of Grand Manan are interconnected in a province-wide grid system. The statistical information given in Table 13 shows the growth of the Commission's undertakings since 1961. Power plant construction under way in New Brunswick during 1964 is outlined at p. 652.

13.—Growth of the New Brunswick Electric Power Commission, Years Ended Mar. 31, 1961-65

Item	1961	1962	1963	1964	1965
High-voltage transmission line...miles	1,585	1,744	1,845	1,947	2,093
Distribution line..... “	7,905	7,996	8,390	8,447	8,528
Direct customers..... No.	103,029	107,415	117,073	118,443	121,036
Plant capacities..... kw.	265,025	307,886	348,736	406,636	419,761
Power generated (incl. purchases) kwh.	1,273,719,910	1,425,489,140	1,644,740,890	1,797,928,340	2,207,165,360
Capital invested..... \$	148,280,363	156,190,514	170,859,403	184,956,439	205,192,238
Revenue..... \$	18,971,596	20,309,856	22,591,554	24,650,853	29,244,088

Quebec.—*Stream and Reservoir Control.*—The Quebec Streams Commission was created in 1910 (SQ 1910, c. 5) and given additional powers in 1912 (RSQ 1925, c. 46) and 1930 (SQ 1930, c. 34); it was authorized to ascertain the water resources of the province, to make recommendations regarding their control, and to construct and operate certain storage dams to regulate the flow of streams. On Apr. 1, 1955, the Commission was abolished and its powers and attributions transferred to the Hydraulic Resources Department, now the Department of Natural Resources. The rivers controlled by the Commission at the time of transfer, either by means of dams on the rivers or by regulating the outflow of lakes at the headwaters, were: the St. Maurice, the Gatineau, the Lièvre, the St. Francis, the Chicoutimi, the Au Sable and the Métis. The Commission also operated nine reservoirs on the North River, two in the watershed of the Stc. Anne de Beaupré River, and one at the outlet of Lake Morin on Rivière du Loup (lower).

Storage reservoirs otherwise controlled or operated are: the Lake St. John, the Lake Manouane and Passe Dangereuse on the Peribonca River controlled by the Aluminum Company of Canada; the Onatchiway on the Shipshaw River controlled by Price Brothers and Company Limited; Memphremagog Lake on the Magog River controlled by the Dominion Textile Company; and Témiscamingue and Quinze Lakes on the Ottawa River controlled by the federal Department of Public Works. Storage reservoirs under the

control of the Quebec Hydro-Electric Commission are: Témiscouata Lake on the Mada-waska River, Kipawa Lake on the Ottawa River, Lac Dozois on the upper Ottawa River, Lac Cassé in the Bersimis River watershed and Lac Ste. Anne on the Toulmoustou River, a tributary of the Manicouagan River.

The Quebec Hydro-Electric Commission.—The Quebec Hydro-Electric Commission was established in 1944 (SQ 1944, c. 22) for the purpose of supplying power to the municipalities, to industrial and commercial undertakings and to citizens of the Province of Quebec at the lowest rates consistent with sound financial administration. On May 1, 1963, the Commission acquired control of the following privately owned electrical utilities operating in the Province of Quebec: the Shawinigan Water and Power Company, the St. Maurice Power Corporation, the Quebec Power Company, the Southern Canada Power Company, the Gatineau Power Company, the Northern Quebec Power Company, the Saguenay Electric Company, and the Lower St. Lawrence Power Company. As a result of these transactions, all electricity production, except for facilities operated by certain industrial organizations in their own manufacturing operations, was brought under the control of a single authority. The services of the Commission now cover virtually the entire province except for local distribution of small amounts of electricity by some municipalities, most of which is purchased from the Commission or its subsidiaries.

At the end of 1964 the Commission controlled, among other assets, the following hydro-electric and thermal-electric plants:—

Item	Hydro-Electric		Thermal-Electric	
	Plants	Capacity ¹	Plants	Capacity
	No.	kw.	No.	kw.
Hydro-Quebec only.....	8	4,098,760	1	36,000
Subsidiaries of Hydro-Quebec—				
Shawinigan.....	10	1,531,200	2	150,700
Quebec Power.....	7	24,440	8	1,430
Southern Canada Power.....	4	47,985	—	—
Gatineau Power.....	14	552,791	—	—
Northern Quebec Power.....	1	89,600	—	—
Saguenay Electric.....	5	8,865	—	—
Lower St. Lawrence Power.....	4	12,100	4	8,327
TOTALS.....	53	6,365,741	15	196,457
Purchases by Hydro-Quebec and subsidiaries.....	...	699,000	—	—

¹ Dependable hydro-electric peak capacity at time of freeze-up approximated 5,600,000 kw.

These facilities now permit the balanced distribution of power throughout Quebec and the most efficient use of the water power resources of the province. It is expected that complete administrative reorganization will be accomplished by the end of 1965. Nationalization of service will be of particular benefit to some 20,000 customers in the northwestern area where the system frequency is being changed from 25 cycle to 60 cycle. The change-over is scheduled for completion in 1965 at an estimated cost of \$12,000,000.

Hydro-Quebec and its subsidiaries, at the end of 1964, served virtually all communities in the province. Customers numbering 1,492,333 were supplied and the distributed primary power demand was 6,150,000 kw. Total power distributed was 6,229,000 kw. Power distributed is given in terms of the net output of the sources of supply made available

to each system coincident with the time of the Montreal primary peak; it also includes purchases of power from other power producers. The distribution of primary power to systems of Hydro-Quebec on the day of primary peak in 1964 was as follows:—

<u>System</u>	<u>Primary Power</u>
	kw.
Main System—	
Southwestern Quebec—	
Montreal Metro area.....	1,918,000
Beauharnois local.....	212,000
Ontario Hydro.....	186,000
Cedars Rapids Transmission Company.....	56,000
Northeastern Quebec—	
Cote Nord, Lower St. Lawrence River.....	76,000
Chibougamau region.....	29,000
Gaspe region served jointly by Hydro-Quebec and its subsidiary, Lower St. Lawrence Power.....	145,000
Northwestern Quebec System (incl. Northern Quebec Power and Gatineau Kipawa system).....	165,000
Territories served by the subsidiaries—Shawinigan, Quebec Power, main Gatineau system, Southern Canada Power, and Saguenay Electric.....	3,363,000
PRIMARY TOTALS MADE AVAILABLE TO SYSTEMS LISTED.....	6,150,000
Transmission losses, Cote Nord to Montreal.....	56,000
Consolidated system <i>primary</i> peak load at source.....	6,206,000
Coincident <i>secondary</i> load.....	79,000

Ontario.—The Hydro-Electric Power Commission of Ontario is a corporate entity, a self-sustaining public enterprise endowed with broad powers with respect to the supply of electricity throughout the Province of Ontario. Its authority is derived from an Act of the Provincial Legislature passed in 1906 to give effect to recommendations of earlier advisory commissions that the water powers of Ontario should be conserved and developed for the benefit of the people of the province. It now operates under the Power Commission Act (SO 1907, c. 19) passed in 1907 as an amplification of the Act of 1906 and subsequently modified from time to time (RSO 1960, c. 300, as amended). The Commission may have from three to six members, all of whom are appointed by the Lieutenant-Governor in Council. Two commissioners may be members of the Executive Council of the Province of Ontario.

The basic principle governing the financial operations of the Commission and its associated municipal utilities is that electrical service is provided at cost. The Commission interprets cost as including payments for power purchased, charges for operating and maintaining the power supply facilities, and related fixed charges. The fixed charges represent interest on debt, provisions for depreciation, allocations to reserves for contingencies and rate stabilization, and the further provision of a sinking fund reserve for retiring the Commission's capital debt. While the enterprise from its inception has been self-sustaining, the province guarantees the payment of principal and interest on all bonds issued by the Commission and held by the public. In addition, the province has materially assisted the development of agriculture by contributing under the Hydro-Electric Distribution Act toward the capital cost of extending rural distribution facilities.

The entire provincial area served is regarded for financial and administrative purposes as a unit, but there is no electrical connection between the Commission's facilities in north-western Ontario and those serving customers in the remainder of the province. Statistics are therefore presented for two operating systems, the East System and the West System; the systems respectively serve the areas east and west of a line extending north from Lake Superior to the Albany River, a line that roughly conforms with the boundary dividing Thunder Bay District from the Districts of Algoma and Cochrane. Service is provided for the most part on a co-operative basis, and predominantly for the benefit of more than 350 municipalities supplied by the Commission with power at cost.

In addition to administering the enterprise over which it has direct control, the Commission, under the Power Commission Act and the Public Utilities Act, exercises certain regulatory functions, particularly with respect to the group of municipal electrical utilities which it serves. In order to provide convenient and expeditious service in this dual function of regulation and supply, the Commission subdivides its province-wide operations into seven regions with regional offices located in seven major municipalities.

The Commission is concerned primarily with the provision of electric power by generation or purchase, and its delivery to the electrical utilities for resale in the more than 350 municipalities having cost contracts with the Commission. The Commission supplies power in bulk, though not under cost contract, to 171 direct customers, some located within the areas of the municipalities already referred to and some outside these areas. These direct customers include industrial customers whose requirements are so large or so unusual as to make service by the local municipal utilities impracticable. They also include mines, industries in unorganized territories, and certain interconnected systems, including a number of independent municipal utilities. These interconnected systems purchase power for resale either within or beyond the boundaries of the province.

In addition to these operations, which represent about 90 p.c. of its energy sales, the Commission delivers electric power to retail customers in rural areas and in a small group of about 30 municipalities served by Commission-owned local distribution facilities. A much larger part of retail service throughout the province is provided, however, by the municipal electrical utilities, who supply ultimate customers in most cities and towns, in many villages, and in certain populous township areas. The municipal electrical utilities are owned and operated by local commissions.

During 1964, the Commission's investment in fixed assets at cost increased by \$97,292,070 and at the end of the year amounted to \$2,762,234,756. Total assets after deducting accumulated depreciation were \$2,824,451,700.

In 1964 a total of 357 associated municipal electrical utilities engaged in the retail distribution of electricity purchased power from the Commission. The total assets of these utilities, after deducting accumulated depreciation, amounted to \$861,265,706, of which \$354,153,351 represented the equity acquired in the Commission's systems by the municipal utilities operating under cost contracts.

The Commission's power development program as at Dec. 31, 1964 is given in Table 14 and is also outlined at pp. 653-654.

14.—Current Power Development Program of The Hydro-Electric Power Commission of Ontario, as at Dec. 31, 1964

System and Development	Units	In Service	Installed Capacity
	No.		kw.
Lakeview—near Toronto.....	8	1961-68	2,400,000
Douglas Point Nuclear Power—near Kincardine.....	1	1965	200,000
Harmon—Matagami River.....	2	1965	129,200
Kipling—Matagami River.....	2	1966	125,400
Mountain Chute—Madawaska River.....	2	1967	160,000 ¹
Lambton—14 miles south of Sarnia.....	4	1968-71	2,000,000
Pickering (nuclear)—20 miles east of Toronto.....	2	1970-71	1,080,000

¹ Tentative capacity.

15.—Resources of The Hydro-Electric Power Commission of Ontario Generated and Purchased (All Systems), December 1962-64

Year and System	Hydro-Electric Stations ¹	Thermal-Electric Stations ¹	Power Purchased
	kw.	kw.	kw.
December 1962—			
East System.....	4,135,550	1,741,000	617,500
West System.....	593,500	—	—
Totals.....	4,729,050	1,741,000	617,500
December 1963—			
East System.....	4,437,250	2,015,000	617,500
West System.....	593,500	93,000	—
Totals.....	5,030,750	2,108,000	617,500
December 1964—			
East System.....	4,445,250	2,027,000	617,000
West System.....	593,500	93,000	—
Totals.....	5,038,750	2,120,000	617,000

¹ Dependable peak capacity—the amount of power which resources can be expected to supply at the time of the system primary peak requirements, assuming that all units are available and that the supply of water is normal. This capacity will vary from time to time in accordance with changing conditions. The capacity of a source of purchased power is based on the terms of the purchase contract.

16.—Distribution of Power to Systems of The Hydro-Electric Power Commission of Ontario, Years Ended Dec. 31, 1959-64

NOTE.—Peak load generated and purchased, primary and secondary, in terms of generation.

System	1959	1960	1961	1962	1963	1964
	kw.	kw.	kw.	kw.	kw.	kw.
East System.....	5,464,008	5,583,208	5,915,484	6,362,585	6,684,726	7,107,690
West System.....	554,196	574,328	548,448	606,300	615,570	610,000
Totals.....	6,018,204	6,157,534	6,463,932	6,968,885	7,300,296	7,717,690

17.—Growth of The Hydro-Electric Power Commission of Ontario, 1955-64

Year	Com-munities Served	Ultimate Customers Served Directly or Indirectly	Total Power Distributed ¹	Assets of Commission and Municipal Utilities
	No.	No.	kw.	\$
1955.....	1,325	1,540,011	4,436,340	2,040,174,745
1956.....	1,340	1,612,049	4,909,104	2,293,492,487
1957.....	1,376	1,674,052	4,970,576	2,563,058,384
1958.....	1,387	1,757,405	5,417,536	2,756,758,142
1959.....	1,405	1,830,453	6,018,204	2,909,088,086
1960.....	1,414	1,881,472	6,157,534	3,044,800,819
1961.....	1,417 ^r	1,938,897	6,463,932	3,196,429,522
1962.....	1,434	1,991,289 ^r	6,968,885	3,148,330,722
1963.....	1,446	2,041,732	7,300,296	3,225,289,707
1964.....	1,459	2,095,754	7,717,690	3,331,564,055

¹ Sum of the maximum 20-minute coincident peak loads (primary plus secondary) of each of the systems operated by the Commission, given in terms of net output of the sources of supply to each system for the last month of each fiscal year.

Manitoba.—Manitoba Hydro is the primary developing, generating and distributing power agency in the Province of Manitoba. The corporation came into being Apr. 1, 1961, following amalgamation of the two former provincial government utilities engaged in the generation and distribution of electric power.

Manitoba Hydro operates six hydro-electric generating stations, two thermal-electric generating stations and ten diesel-electric generating installations. The combined generating capability is 1,160,460 kw. Hydro installations account for 910,000 kw., thermal installations for 244,000 kw. and diesel installations for 6,460 kw. of the generating capability. Four of the hydro stations are located on the Winnipeg River and, like the thermal installations, provide power to the southern part of the province. The fifth hydro-electric generating station, rated at 160,000 kw., is situated on the Nelson River 425 miles north of Winnipeg and supplies power to The International Nickel Company of Canada, Limited development and the townsite at Thompson. The sixth hydro-electric installation is the newly completed 330,000-kw. Grand Rapids Generating Station located on the Saskatchewan River. This station is connected electrically with southern Manitoba. Diesel installations are used to provide power in isolated northern communities.

In serving its 211,470 urban, rural, commercial and industrial customers, the corporation maintains some 35,090 miles of primary transmission and farm distribution lines. Approximately 98 p.c. of the total resident-occupied farms in the province are electrified and 564 cities, towns and villages are provided with power service. While Manitoba Hydro supplies power for most of the province including the cities and municipalities adjoining the city of Winnipeg and comprising part of Metropolitan Winnipeg, it does not distribute power within the corporate limits of the city although it does supply a portion of the city's power requirements.

Power plant construction in Manitoba in 1964 is outlined at p. 654.

Saskatchewan.—The Saskatchewan Power Corporation was established on Feb. 1, 1949 and operates under the provisions of the Power Corporation Act (SS 1950, c. 10, as amended). It succeeded the Saskatchewan Power Commission which had operated from Feb. 11, 1929. The original functions of the Corporation included the generation, transmission, distribution, sale and supply of hydro and steam electric energy. Since 1952, the Corporation has been authorized to produce or purchase and to transmit, distribute, sell and supply natural or manufactured gas.

In 1964, the Corporation served approximately 972 urban communities (with six or more customers) in retail sales, and served the cities of Saskatoon and Swift Current, the town of Battleford, and the hamlet of Waskesiu in bulk sales. Some bulk power was also sold to the city of Regina and to the Manitoba Hydro-Electric Board on an exchange basis. Activities of the Corporation cover the entire province with the exception of the city of Regina, which owns and operates municipal plants and a distribution system.

At the end of 1964, the Corporation served 246,389 customers, 206,047 of whom were retail customers and 40,342 of whom were located in communities supplied with power through bulk sales. The retail customers included 139,614 urban customers and 66,433 classified as rural, mainly farm, meters. During 1964, 2,208,149,680 kwh. were made available to customers, of which 2,202,592,812 kwh. were generated in Corporation plants and 5,556,868 kwh. were purchased in bulk. At the end of the year, the Corporation had invested, at cost, \$365,445,780 in electric system assets out of a total of \$509,784,039 in plant-in-service in the combined electric and natural gas systems.

During 1964, Squaw Rapids, the first hydro-electric plant within the provincial system, supplied 29.1 p.c. of the gross generation. The Corporation also owned and operated five steam generating plants at year-end—two each at Saskatoon and Estevan and one at Moose Jaw, the latter brought back into service at year-end. Steam supplied 64.4 p.c. of total system requirements, and two internal combustion gas dual fuel plants at Kindersley and Swift Current supplied 6.5 p.c. System capability in operation at the end of 1964 was assessed at 694,150 kw. with 452,000 kw. in steam plants, 201,000 kw. in

hydro and 41,150 kw. in gas turbine and internal combustion plants. At the end of 1964, the Corporation owned and operated 72,482 miles of transmission and rural lines; this figure excludes urban distribution and hi-lines.

Power plant construction in Saskatchewan in 1964 is outlined on p. 654.

18.—Growth of the Saskatchewan Power Corporation, 1955-64

Year	Communities Served in Bulk and Retail Sales	Individual Meters in Communities Served	Power Distributed	Revenue
	No.	No.	kwh.	\$
1955.....	742	149,134	556,776,981	13,350,177
1956.....	799	162,594	659,720,877	15,566,910
1957.....	870	178,567	780,613,534	18,152,460
1958.....	880	188,293	909,086,629	20,687,771
1959.....	962	197,461	1,067,349,615	23,909,113
1960.....	984	221,675	1,233,531,753	26,667,471
1961.....	901	229,336	1,498,055,955	30,263,598
1962.....	961 ¹	235,386	1,645,862,278	33,106,018
1963.....	969	240,812	1,926,862,734	36,892,949
1964.....	976	246,389	2,208,149,680	39,777,472

¹ November 1962 figure.

Alberta.—The generation and distribution of electric power in Alberta is handled by a combination of several municipally owned urban systems and three investor-owned companies serving the greater part of the province. The regulatory authority over the investor-owned systems is the Public Utilities Board, which has jurisdiction over the distribution and sale of electricity. The Board, which controls franchises and rates, has power to hold investigation upon complaint either by a municipality or by a utility company, and following such investigation may fix just and reasonable rates. The Alberta Power Commission controls all phases of system development, including the provincial grid system.

Power plant construction in Alberta in 1964 is outlined at pp. 654-655.

British Columbia.—The British Columbia Hydro and Power Authority comprises the British Columbia Electric Company Limited and the British Columbia Power Commission carrying on business together by virtue of the Power Measures Act, 1964. The electric service of the organization includes the generation and transmission of electricity and its distribution throughout the areas of British Columbia containing more than 90 p.c. of the population of the province; the Authority also operates gas, passenger transportation and rail freight services.

Of the Authority's total electric power requirements of 8,121,490,540 kwh. for the year ended Mar. 31, 1965, 7,104,415,285 kwh. or 87.5 p.c. was produced by hydro-electric plant, 774,495,026 kwh. or 9.5 p.c. was produced by thermal plant and the remainder, amounting to 242,580,229 kwh., was purchased. Kilowatt-hours of electricity sold totalled 7,344,875,741, an amount 14.2 p.c. higher than the sales of the previous year and nearly twice as high as the average annual increase of 7.6 p.c. for the previous five-year period. All categories of customers recorded impressive increases in kilowatt-hours consumed over the previous year—residential consumption was up 10.0 p.c., general consumption increased 8.9 p.c. and large industrial consumers recorded a remarkable 26.7-p.c. advance. There was a net increase of 24,457 in the number of electric customers during the year, bringing the total to 502,843 at the year-end. Average annual consumption per residential account rose from 5,200 kwh. in 1963-64 to 5,486 kwh. in 1964-65.

Power plant additions and construction in British Columbia in 1964 are outlined at p. 655.

19.—Summary Statistics of the British Columbia Hydro and Power Authority, Year Ended Mar. 31, 1965

Item	Amount	Item	Amount
Generating capacity..... kw.	1,893,592	Proportionate Sales—concluded	
Hydro..... "	1,805,722	Other systems (mainly residen-	
Thermal..... "	687,870	tial)..... p.c.	2
Power requirements..... '000 kwh.	8,121,491	Commercial, industrial, etc....	67
Generated..... "	7,878,911	Pole Miles of Line—	
Purchased..... "	242,580	Transmission (high voltage)...	No.
Customers at year-end..... No.	502,843	Distribution primaries.....	"
Electricity sold..... '000 kwh.	7,344,876	Revenue (electric).....	\$'000
Proportionate Sales—		Capital Investment (plant in	
Residential..... p.c.	31	operation).....	"
			961,347

Northwest Territories and Yukon Territory.—The Northern Canada Power Commission, formerly Northwest Territories Power Commission, was created by Act of Parliament in 1948 to supply electric power to points in the Northwest Territories where a need developed and where power could be provided on a self-sustaining basis. By legislation passed in 1950, the Act was extended to include Yukon Territory. The Commission has authority to construct and operate power plants as required in the Territories and, subject to approval of the Governor in Council, in any other parts of Canada.

The Commission has hydro-electric power developments on the Yukon River near Whitehorse, Y.T., the Mayo River near Mayo, Y.T., and the Snare River northwest of Yellowknife, N.W.T. Diesel-electric plants are operated at Fort Simpson, Fort Smith, Fort Resolution, Fort McPherson, Aklavik and Field, B.C., and utility plants comprising power, central heat and water and sewerage services at Inuvik and Frobisher Bay, N.W.T., and at Moose Factory, Ont.

The Whitehorse Rapids power development, in service since 1958, supplies the Department of National Defence at Whitehorse, most of the power for the city of Whitehorse, and three electric steam generators for heating the Department of National Health and Welfare hospital and two Department of Citizenship and Immigration hostels. The Snare River hydro developments supply power to the mines in the Yellowknife area and, in conjunction with the Bluefish hydro-electric plant of the Consolidated Mining and Smelting Company of Canada Limited, the town of Yellowknife. The original Snare Rapids plant has been in operation since September 1948 and the Snare Falls plant, situated on the same river about 10 miles downstream from the original plant, was placed in service in November 1960. Control of the Snare Rapids and Snare Falls plants was transferred to a remote control centre located in Yellowknife in the spring of 1965. The Mayo River plant has supplied power to mining properties in the Elsa and Keno areas and to the communities of Mayo and Keno City since 1952. A hydro-electric development under construction on the Taltson River, near Fort Smith, N.W.T. will, when completed in the fall of 1965, supply the lead-zinc mining operation being developed by Pine Point Mines Ltd. located at Pine Point, N.W.T., and replace the existing diesel power supply at Fort Smith, N.W.T. Details of construction in the Territories during 1964 are outlined at p. 655.

CHAPTER XVI.—MANUFACTURES

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

Section 1.—Growth of Manufacturing

Subsection 1.—The Recent Manufacturing Situation

The predominant influences on the growth of Canadian manufacturing in the three years ending in 1964 were the continuation in both Canada and the important United States export market of the expansionary phase of the business cycle begun in 1961, the accompanying high rate of capital investment activity, a particularly strong domestic demand for motor vehicles and the competitive advantage gained from the lower foreign exchange value of the Canadian dollar. Other factors included a stimulus to the demand for manufactured products, mostly in 1964, from the combination of a large 1963 wheat crop and large wheat export contracts and, in 1963 and 1964, buoyant overseas markets for Canadian manufactures.

Whereas the physical volume of manufacturing production declined 0.3 p.c. in 1960, a recession year, it rose 2.5 p.c. in 1961, the first year of the expansion, and then 7.8 p.c. in 1962. A smaller increase of 5.5 p.c. in 1963 was followed in 1964 by a rise of 8.2 p.c., the largest since the beginning of the expansion. In terms of the actual dollar value of manufacturers' shipments of goods of their own manufacture, annual Census of Manufactures data show an increase of 2.0 p.c. in 1960, followed by 4.1 p.c. in 1961, 9.9 p.c. in 1962 and 8.3 p.c. in 1963. The monthly survey of manufacturers' shipments* shows a rise of 9.8 p.c. in 1964, suggesting an annual figure of upwards of \$31,600,000,000. The number of employees in manufacturing rose 4.8 p.c. in 1964† and in that year capital expenditures by manufacturers showed one of the sharpest increases in the post World War II period. The latter subject is discussed in Chapter XVII on Capital Expenditures, Construction and Housing.

The rising costs usually associated with a higher level of over-all economic activity and the effects of devaluation upon prices of imported components and, perhaps, upon competitive pressures, led to some acceleration of price increases in manufacturing. The unweighted average of selling price indexes for domestic manufacturing industries rose only 0.7 p.c. in 1960 and 0.3 p.c. in 1961 but increased 1.0 p.c. in 1962, 2.2 p.c. in 1963 and 1.4 p.c. in 1964. As is usual, the upswing in activity contributed to improvement in the rate of growth of output per person employed and per man-hours in manufacturing, followed by evidence of some lessening of the rate of productivity growth as more of the slack was removed. Statistics on output per person employed and per man-hours and a discussion of these concepts are given in Section 3 of Chapter XXIV on Trends in Economic Aggregates.

* DBS publication *Inventories, Shipments and Orders in Manufacturing Industries* (Catalogue No. 31-001).

† DBS publication *Estimates of Employees by Province and Industry* (Catalogue No. 72-008).

The monthly surveys of shipments and employment provide a provisional picture of manufacturing in 1964 but the 1963 annual Census of Manufactures, figures for which are given in the tables of this Chapter, presents a comprehensive account of the manufacturing industries in that year, although these figures are also subject to minor revision. They show that the value of shipments of goods of own manufacture rose to a record level of \$28,942,666,000, an increase of 8.3 p.c. over 1962. The number of production and related workers employed rose to 1,003,915, an increase of 3.1 p.c., and the production man-hours paid rose 3.3 p.c. Wages paid to these workers amounted to \$4,097,540,000, an increase of 6.9 p.c. over 1962. The cost of fuel and electricity, at \$563,479,000, was up 4.5 p.c., the cost of materials and supplies used, at \$15,970,859,000, increased 9.4 p.c., and value added by manufacture amounted to \$12,568,168,000, an increase of 7.0 p.c.

The total number of employees of the manufacturing industry (excluding working owners and partners but including employees engaged in non-manufacturing activities) was 1,427,143 in 1963, higher by 2.6 p.c. than in the previous year, and their wages and salaries came to \$6,505,287,000, an advance of 6.6 p.c. The value added on a "total activity" basis (i.e., including non-manufacturing activity) was \$13,173,433,000, an increase of 7.1 p.c.

Among the industry groups, the transportation equipment industries showed the largest proportionate gain in 1963. Stimulated by the high level of consumer demand for cars, the value of factory shipments for these industries reached \$2,830,176,000, a gain of 20.8 p.c. over 1962; this was the third largest industry group. The food and beverage industries, which was the largest group in terms of shipments, had shipments of \$5,714,198,000, an increase of 6.3 p.c. over the previous year. Other industry groups having shipments of \$1,000,000,000 or more were, with percentage increases in parentheses: primary metal industries, \$3,101,478,000 (4.5 p.c.); paper and allied industries, \$2,452,437,000 (5.1 p.c.); metal fabricating industries, \$1,877,158,000 (9.0 p.c.); chemical and chemical products industries, \$1,644,786,000 (6.6 p.c.); electrical products industries, \$1,545,046,000 (11.2 p.c.); petroleum and coal products industries, \$1,365,647,000 (5.5 p.c.); wood industries, \$1,276,848,000 (10.6 p.c.); and textile industries, \$1,099,838,000 (12.0 p.c.).

Among the provinces, the largest proportionate increase in 1963 was shown by New Brunswick, which recorded a 13.8-p.c. advance. Ontario was second with 9.6 p.c., followed closely by British Columbia with 8.6 p.c. Gains for the other provinces were below the national average of 8.3 p.c. They were: Newfoundland, 7.9 p.c.; Nova Scotia, 7.6 p.c.; Manitoba, 6.9 p.c.; Alberta, 6.8 p.c.; Quebec, 6.4 p.c.; Saskatchewan, 5.1 p.c.; and Prince Edward Island, 1.4 p.c.

The indexes of manufacturing production indicate that the 1964 increase in the physical volume of manufacturing output was greatest in the durable manufactures industries, which rose 9.6 p.c. over 1963. Non-durable manufactures industries increased their physical volume by 7.1 p.c. Among the major industry groups, the non-metallic mineral products industries showed the largest percentage increase in volume; their output rose 14.2 p.c., reflecting a heavy demand for portland cement and other construction materials as a result of the rise in capital investment activity. The iron and steel products industries, also affected by the high investment activity and by strong demand for consumer durables, registered a 12.7-p.c. increase, the second largest percentage advance. Rubber products followed with an increase of 12.2 p.c. and chemical products with one of 12.0 p.c. The marked increase in factory shipments of motor vehicles was reflected in a 9.4-p.c. gain for the transportation equipment industry (as well as in the gain recorded by rubber products) but the transportation group gain also reflected advances in aircraft and railway rolling-stock production.

Manufacturing accounted for 26.3 p.c. of the gross domestic product at factor cost in 1964 and also accounted for 28.5 p.c. of wages, salaries and supplementary income and the same percentage of investment income, according to statistics entering into the gross domestic product.

Subsection 2.—Historical and Current Statistics of Manufacturing

Statistics on manufacturing in Canada have been collected since 1870, originally in connection with the decennial or quinquennial censuses for the period 1870 to 1915 and, since 1917, through the annual Census of Manufactures. Although every effort has been made to maintain comparability in the statistics since 1917, as shown in Table 1, changes in coverage of industries, type of data collected and the method of its treatment have inevitably introduced discontinuities or lack of comparability in certain components. One such major change in concept occurred in 1952 when the gross value of products was replaced by the value of factory shipments. More recently, the introduction of the revised standard industrial classification in 1960 and the new establishment concept in 1961 led to a break in continuity with previous years. An indication of the effects of these revisions in classification and concept is given in Table 1 where statistics for the 1957-59 period are given on both the 1948 standard industrial classification and manufacturing activity concept and the revised (1960) standard industrial classification and new establishment concept. Under the latter concept, a manufacturing establishment (i.e., one whose major activity is manufacturing) is the smallest reporting unit capable of reporting all of the following: materials and supplies used, goods purchased for resale as such, fuel and power consumed, number of employees and their pay, inventories, and shipments or sales.

The introduction of the total activity concept in 1962 and its application to 1961 data produced a considerable amount of data on non-manufacturing activities of manufacturing industries and has resulted in the transfer of statistics on some items, such as office and administrative workers and working owners and partners, from manufacturing to total activity. Table 2 sets out summary statistics for manufacturing activity and total activity for 1961, 1962 and 1963. It should be noted that the 1961 data in Table 2 are not directly comparable with those for the same year in Table 1 and that 1963 data were preliminary at the time of publication.

1.—Summary Statistics of Manufactures, 1917-61

NOTE.—Figures for intervening years from 1918 to 1949, not included in this table, are given in the 1962 Year Book, p. 616. Statistics of manufacturing from 1870 have been published but between that year and 1917 figures are not on a basis comparable to the series given below; statistics for significant years appear in the 1943-44 Year Book, p. 363. Figures of the non-ferrous metal smelting industries were first included with manufactures in 1925.

Year	Estab-lish-ments	Employees ¹	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture ²	Value of Shipments of Goods of Own Manufacture ³
BASIS: INDUSTRIAL CLASSIFICATION IN USE PRIOR TO 1960						
	No.	No.	\$'000	\$'000	\$'000	\$'000
1917.....	21,845	606,523	497,802	1,539,679	1,281,132	2,820,811
1920.....	22,532	598,893	717,494	2,085,272	1,621,273	3,706,545
1925.....	20,981	522,924	569,944	1,571,788	1,167,937	2,816,865
1930 ⁴	22,618	614,696	697,555	1,664,788	1,522,737	3,280,237
1935 ⁴	24,034	566,664	559,468	1,419,146	1,153,485	2,653,911
1940.....	25,513	762,244	920,873	2,449,722	1,942,471	4,529,173
1945.....	29,050	1,119,372	1,845,773	4,473,669	3,564,316	8,250,369
1950 ⁵	35,942	1,183,297	2,771,267	7,538,535	5,942,058	13,817,526
1951.....	37,021	1,258,375	3,276,281	9,074,526	6,940,947	16,392,187
1952.....	37,929	1,288,382	3,637,620	9,146,172	7,443,533	16,982,687
1953.....	38,107	1,327,451	3,957,018	9,380,559	7,993,069	17,785,417
1954.....	38,028	1,267,966	3,896,688	9,241,858	7,902,124	17,554,528
1955.....	38,182	1,298,461	4,142,410	10,338,202	8,753,540	19,513,934
1956.....	37,428	1,353,020	4,570,692	11,721,537	9,605,425	21,636,749
1957.....	37,875	1,359,061	4,819,628	11,900,752	9,822,085	22,183,594
1958.....	36,741	1,289,602	4,802,496	11,821,567	9,454,955	22,163,186
1959.....	36,193	1,303,956	5,073,074	12,552,201	10,320,963	23,311,601

For footnotes, see end of table, p. 676.

1.—Summary Statistics of Manufactures, 1917-61—concluded

Year	Estab- lish- ments	Employees ¹	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture ²	Value of Shipments of Goods of Own Manufacture ³
BASIS: REVISED STANDARD INDUSTRIAL CLASSIFICATION AND NEW ESTABLISHMENT CONCEPT						
	No.	No.	\$'000	\$'000	\$'000	\$'000
1957.....	33,551	1,340,948	4,778,040	11,698,789	..	21,452,343
1958.....	32,446	1,272,686	4,758,614	11,630,825	9,454,954	21,434,815
1959.....	32,075	1,287,809	5,030,128	12,339,558	10,154,277	22,830,827
1960.....	32,852	1,275,476	5,150,503	12,451,637	10,371,284	23,279,804
1961.....	32,415	1,264,946	5,231,447	13,127,708	10,682,138	24,243,295

¹ Includes working owners and partners. ² For 1924-51, inclusive, the value added by manufacture is computed by subtracting cost of fuel, electricity and materials from gross value of products; for 1952 and 1953 the deduction is made from value of factory shipments and for 1954 and subsequent years from the calculated value of production. Figures prior to 1924 are not comparable because statistics for cost of electricity are not available. ³ Prior to 1952, gross value of products. ⁴ A change in the method of computing the number of employees in the years 1925 to 1930, inclusive, increased the number somewhat over that which the method otherwise used would have given. In 1931, however, the method in force prior to 1925 was re-adopted. ⁵ Newfoundland is included from 1949 but figures for the fish processing industry for 1949 and 1950 are not available for that province and are not included.

2.—Summary Statistics of Manufactures, 1961-63

NOTE.—Based on the revised standard industrial classification and new establishment and total activity concepts. Figures in this table include poultry processors, book publishers, electroplating establishments, dental laboratories, and prescription branches in the ophthalmic goods manufactures industry, not included in Table 1.

MANUFACTURING ACTIVITY ¹								
Year	Estab- lish- ments	Production and Related Workers			Cost of Fuel and Elec- tricity ²	Cost of Materials and Supplies Used	Value of Shipments of Goods of Own Manu- facture	Value Added
		Number	Man- Hours Paid	Wages				
	No.		'000	\$'000	\$'000	\$'000	\$'000	\$'000
1961.....	33,352	938,750	1,968,841	3,531,326	515,318	13,200,242	24,310,184	10,690,074
1962.....	33,430	974,057	2,071,279	3,832,799	539,412	14,595,998	26,712,995	11,741,066
1963.....	33,133	1,003,915	2,138,760	4,097,540	563,479	15,970,859	28,942,666	12,568,168
TOTAL ACTIVITY								
Year	Estab- lish- ments	Working Owners and Partners ³		Total Employees ⁴		Total Cost of Materials and Supplies ⁵ Used and Goods Purchased for Re-sale	Total Operational Revenue ⁶	Total Value Added ⁷
		Number	With- drawals	Number	Salaries and Wages			
		No.			\$'000	\$'000	\$'000	\$'000
1961.....	33,352	16,985	57,970	1,353,315	5,705,573	15,049,410	26,629,317	11,185,302
1962.....	33,430	17,230	60,744	1,391,426	6,102,995	16,607,538	29,267,819	12,302,196
1963.....	33,133	16,032	59,430	1,427,143	6,505,287	18,060,084	31,622,241	13,173,433

¹ Conceptually identical to previous years. ² Cannot be reported separately for manufacturing and non-manufacturing activities but related substantially to manufacturing activity. ³ Included with administrative and office employees in Table 1. ⁴ Includes production and related workers, administrative and office employees, sales, distribution and other employees; excludes working owners and partners. ⁵ Includes supplies used in both manufacturing and non-manufacturing activity. ⁶ Includes shipments of goods of own manufacture, value of shipments of goods purchased for re-sale and other operational revenue. ⁷ Value of total operational revenue less total cost of materials, supplies, fuel and electricity used and goods purchased for re-sale in the same condition; all adjusted for inventory changes where required.

3.—Summary Statistics of Manufactures, by Industry Group, 1962 and 1963

NOTE.—Based on the revised standard industrial classification and new establishment and total activity concepts.

Industry Group and Year	Estab-lish-ments	MANUFACTURING ACTIVITY ¹										TOTAL ACTIVITY					
		Production and Related Workers			Cost of Fuel and Elec- tricity ²		Cost of Materials and Supplies Used		Value of Ship- ments of Goods and Manu- facture		Working Owners and Partners ³		Total Employees ⁴		Total Value Added ⁵		
		Number	Man- Hours Paid	Wages	\$'000	\$'000	\$'000	\$'000	\$'000	Value Added \$'000	Number	With- draws	Number	Salaries and Wages			
Food and beverage industries.....	1962 7,680	129,093	277,130	441,806	74,595	3,517,541	5,375,339	1,817,723	4,386	15,911	210,156	816,762	210,156	816,762	210,156	816,762	1,896,675
1963 7,528	128,002	274,069	455,345	77,455	3,766,187	5,714,198	1,898,062	4,127	15,345	210,078	848,282	1,984,052	210,078	848,282	210,078	848,282	1,984,052
Tobacco products industries.....	1962 40	8,422	16,993	31,977	1,290	212,307	346,570	125,887	7	31	11,149	47,614	11,149	47,614	11,149	47,614	126,808
1963 38	8,583	16,779	33,888	1,404	220,995	355,981	133,859	7	17	11,011	48,039	135,582	11,011	48,039	11,011	48,039	135,582
Rubber industries.....	1962 90	15,664	34,117	66,331	5,550	170,771	353,962	180,528	9	31	22,788	104,203	22,788	104,203	22,788	104,203	187,712
1963 93	16,879	36,187	71,846	5,921	189,212	386,730	194,613	10	32	24,162	110,974	204,603	24,162	110,974	24,162	110,974	204,603
Leather industries.....	1962 547	28,009	58,015	75,708	2,355	161,979	309,178	145,960	181	700	32,960	100,425	32,960	100,425	32,960	100,425	147,065
1963 539	28,037	57,624	77,683	2,414	158,129	314,533	153,507	184	733	32,647	102,140	154,711	32,647	102,140	32,647	102,140	154,711
Textile industries.....	1962 894	52,769	113,904	164,194	15,714	529,445	982,129	439,836	326	1,432	67,810	242,457	67,810	242,457	67,810	242,457	448,796
1963 922	55,193	119,620	178,984	16,298	601,691	1,099,838	489,403	345	1,727	70,335	263,380	497,383	70,335	263,380	70,335	263,380	497,383
Knitting mills.....	1962 351	19,161	40,597	47,412	2,014	131,488	233,506	103,112	80	385	22,962	64,303	22,962	64,303	22,962	64,303	103,185
1963 359	19,457	41,385	49,856	1,994	144,635	255,140	110,189	75	338	22,573	66,551	110,238	22,573	66,551	22,573	66,551	110,238
Clothing industries.....	1962 2,308	76,729	153,659	193,001	3,098	461,695	860,477	402,349	1,022	4,676	91,730	265,693	91,730	265,693	91,730	265,693	404,856
1963 2,294	78,736	157,995	204,124	3,167	501,017	924,223	427,834	969	4,461	92,383	277,700	431,297	92,383	277,700	92,383	277,700	431,297
Wood industries.....	1962 5,017	70,279	150,212	247,957	23,626	624,133	1,154,377	510,470	3,739	8,484	83,468	311,982	83,468	311,982	83,468	311,982	524,945
1963 4,779	72,823	155,494	269,732	25,176	685,784	1,276,848	571,917	3,315	7,802	86,888	340,752	586,681	86,888	340,752	86,888	340,752	586,681
Furniture and fixture industries.....	1962 2,144	27,601	60,511	90,282	4,055	187,748	386,569	198,655	1,568	5,319	34,362	125,172	34,362	125,172	34,362	125,172	201,416
1963 2,104	28,874	63,128	96,988	4,156	205,833	421,509	214,166	1,511	5,299	35,916	134,442	217,792	35,916	134,442	35,916	134,442	217,792
Paper and allied industries.....	1962 580	77,141	168,182	369,715	127,983	1,080,364	2,333,578	1,130,652	58	267	100,710	520,078	100,710	520,078	100,710	520,078	1,150,793
1963 591	77,732	169,758	383,258	132,166	1,140,388	2,452,437	1,181,141	54	251	101,906	542,854	1,196,223	101,906	542,854	101,906	542,854	1,196,223
Printing, publishing and allied industries.....	1962 3,499	42,849	87,149	196,312	6,828	293,747	925,443	626,513	1,872	7,604	75,601	361,468	75,601	361,468	75,601	361,468	636,138
1963 3,466	43,419	88,203	203,922	6,886	309,014	969,482	647,300	1,754	7,601	76,187	376,483	657,756	76,187	376,483	76,187	376,483	657,756
Primary metal industries.....	1962 399	71,127	148,919	363,650	87,725	1,678,462	2,969,096	1,209,123	81	366	91,923	498,154	91,923	498,154	91,923	498,154	1,226,559
1963 394	72,546	154,666	384,245	92,329	1,769,967	3,101,478	1,252,479	75	318	94,233	529,389	1,276,512	94,233	529,389	94,233	529,389	1,276,512

For footnotes, see end of table, p. 678.

3.—Summary Statistics of Manufactures, by Industry Group, 1962 and 1963—concluded

Industry Group and Year	Estab-lish-ments	MANUFACTURING ACTIVITY ¹						TOTAL ACTIVITY				
		Production and Related Workers			Cost of Fuel and Elec- tricity ²	Cost of Materials and Supplies Used	Value of Ship-ments of Goods and of Own Manu- facture	Working Owners and Partners ³		Total Employees ⁴	Total Value Added ⁵	
		Number	Man- Hours Paid	Wages				Number	With- draws			
					\$'000	\$'000	\$'000			\$'000	\$'000	\$'000
Metal fabricating industries (except machinery and transportation equipment industries)	3,069	79,241	167,657	340,117	21,463	858,945	1,722,554	1,295	5,237	109,472	508,623	895,925
1962	3,115	83,119	178,217	368,292	22,503	946,392	1,877,158	1,177	5,040	113,226	544,169	962,854
1963												
Machinery industries (except electrical machinery)	572	31,015	65,867	140,067	7,119	366,039	750,248	74	398	54,570	272,434	510,433
1962	599	34,466	72,891	161,297	7,416	431,900	884,052	80	520	58,912	305,735	575,358
1963												
Transportation equipment industries	682	75,601	166,086	373,086	19,773	1,379,503	2,343,690	326	954	104,850	549,635	1,007,467
1962	703	80,706	178,267	421,953	21,027	1,715,015	2,830,176	304	970	111,627	619,773	1,197,703
1963												
Electrical products industries	531	58,029	122,113	233,250	12,145	671,223	1,359,382	36	194	96,595	453,357	810,305
1962	545	61,241	128,594	254,017	13,171	750,834	1,545,046	40	233	101,249	487,878	863,490
1963												
Non-metallic mineral products indus- tries	1,327	33,680	74,111	143,593	50,815	290,357	771,771	511	1,567	45,495	210,094	453,841
1962	1,330	34,064	74,835	149,217	51,817	305,683	808,978	447	1,514	46,333	219,330	472,375
1963												
Petroleum and coal products indus- tries	89	7,404	16,175	43,571	10,850	1,003,806	1,294,070	4	16	16,277	104,410	284,619
1962	84	7,281	15,725	43,369	11,337	1,030,171	1,365,647	4	14	15,399	101,042	286,746
1963												
Chemical and chemical products industries	1,080	31,602	67,318	141,629	56,047	666,323	1,543,593	192	659	63,905	332,577	875,213
1962	1,063	32,511	69,920	150,881	59,901	719,705	1,644,786	165	598	65,491	355,064	929,346
1963												
Miscellaneous manufacturing industries	2,531	38,551	82,562	129,141	6,367	200,122	667,462	1,463	6,515	54,643	213,554	409,444
1962	2,557	40,246	85,401	138,644	6,943	328,280	723,334	1,389	6,618	56,532	231,272	433,730
1963												
Totals	33,430	974,057	2,071,279	3,832,799	539,412	11,595,998	26,712,995	17,230	60,744	1,391,426	6,102,995	12,373,196
1962	33,133	1,003,915	2,138,760	4,097,540	563,479	15,970,559	28,942,666	16,032	59,430	1,427,143	6,505,287	13,173,433
1963												

¹ Conceptually identical to previous years.² Cannot be reported separately for manufacturing and non-manufacturing activities but related substantially to manu- facturing activity.³ Included with administrative and office employees in the manufacturing series published in former years.⁴ Value of total shipments and other⁵ Value of total shipments and other operational revenue less total cost of materials, supplies, fuels used and purchases of products and materials for re-sale in the same condition; all adjusted for inventory changes where required.

Volume of Manufacturing Production

Since manufacturers' selling prices change and since production from other industries (and countries) is embodied in Canadian factory shipments, a measure of fluctuations and long-term growth in the physical volume of production within the Canadian manufacturing industry itself is desirable. Such a measure of volume, or "real" domestic production, is provided by the index of manufacturing production. This index differs from current statistics on the gross value of factory output in two important ways besides the exclusion of price change: it uses the 1948 rather than the 1960 standard industrial classification and it is designed to represent net production. Although a revision is under way, because of their central importance to the study of Canadian manufacturing, the unrevised indexes are shown for selected years in Table 4.

4.—Indexes of Volume of Manufacturing Production, for Major Industry Groups, 1946-64

(Ranked according to 1964 percentage increase over 1949)

(1949=100)

Industry Group	1946	1954	1959	1960	1961	1962	1963	1964
Products of petroleum and coal.....	74.3	165.0	241.5	250.6	258.8	272.8	296.0	304.2
Chemical products.....	87.0	152.1	208.4	219.7	222.1	233.2	249.1	279.0
Non-metallic mineral products ¹	72.0	146.1	223.2	210.9	220.2	240.9	243.0	277.6
Miscellaneous manufacturing industries.....	80.2	134.3	183.2	191.6	213.0	237.2	246.6	261.9
Electrical apparatus and supplies ¹	67.7	151.7	184.8	180.2	182.6	212.9	223.5	239.2
Tobacco products.....	90.6	124.7	179.9	182.0	193.6	203.7	207.7	214.0
Rubber products.....	89.5	119.2	161.1	143.3	145.7	167.6	190.5	213.8
Transportation equipment ¹	80.6	137.3	131.5	130.0	129.8	156.7	181.4	198.5
Iron and steel products ¹	80.8	106.2	147.2	137.3	139.4	152.1	161.8	182.4
Paper products.....	81.0	124.1	144.7	148.4	153.4	159.1	164.3	179.0
Food and beverage products.....	98.0	120.6	147.6	150.2	154.2	158.9	162.1	174.1
Textile products.....	88.7	94.3	124.4	122.5	134.6	146.6	159.5	172.2
Wood products ¹	86.8	124.2	136.6	136.0	139.6	151.5	159.0	165.1
Printing, publishing and allied industries.....	76.9	121.6	143.2	146.5	148.2	154.0	156.7	164.6
Non-ferrous metal products ¹	81.8	117.0	134.7	148.3	147.6	148.9	148.8	162.0
Clothing products.....	95.3	108.9	113.1	107.9	107.1	111.0	137.0 ²	135.8 ²
Leather products.....	124.0	100.2	120.3	111.8	123.8	126.7	127.0	130.9
Non-durable manufactures.....	89.8	121.2	150.1	151.8	157.0	164.8	172.2	184.5
Durable manufactures.....	79.9	124.8	149.5	146.4	148.4	165.0	175.9	192.7
All Manufactures.....	85.2	122.9	149.8	149.3	153.0	164.9	173.9	188.2

¹ Durable manufactures; other groups are non-durable.

² Not comparable with earlier years.

Industry Selling Price Indexes

The most comprehensive estimate of price changes in manufacturing is an unweighted average of industry selling price indexes. There are currently 102 such indexes, each based on prices of a representative "basket" of products of a particular manufacturing industry. (They thus relate to gross rather than net production, as defined above in connection with the volume of manufacturing production.) Although the average of these is not a scientific, weighted measure of price changes in manufacturing, it appears to give a reasonably good over-all indication of the direction and extent of price movements. The unweighted annual average of industry selling price indexes (1956=100) is as follows for years for which they have been issued:—

1956.....	100.0	1959.....	102.4	1962.....	104.4
1957.....	101.6	1960.....	103.1	1963.....	106.7
1958.....	101.4	1961.....	103.4	1964.....	108.2

Section 2.—Provincial Distribution of Manufacturing

Manufacturing activity is heavily concentrated in Central Canada, Ontario and Quebec together accounting for 80.6 p.c. of total value added by manufacture in Canada in 1963—Ontario for 52.0 p.c. and Quebec for 28.6 p.c. British Columbia accounted for 8.4 p.c.; the Prairie Provinces for 7.4 p.c. and the Atlantic Provinces for 3.6 p.c.

5.—Summary Statistics of Manufactures, by Province, 1962 and 1963

NOTE.—Based on the revised standard industrial classification and new establishment and total activity concepts.

Provinces or Territory and Year	Estab-lish-ments	MANUFACTURING ACTIVITY ¹						TOTAL ACTIVITY					
		Production and Related Workers			Cost of Fuel and Elec-tricity ²	Cost of Materials and Supplies Used	Value of Ship-ments of Goods of Own Manu-facture	Working Owners and Partners ³	Total Employees ⁴	Total Value Added ⁵			
		Number	Man-Hours Paid	Wages									
	No.		'000	\$'000	\$'000	\$'000	\$'000	Number	With-drawals	Number	Salaries and Wages		
Newfoundland	331 308	7,698 7,998	17,031 17,243	27,000 27,605	7,455 7,626	67,063 155,275	143,925 152,275	72,829 74,001	241 192	427 339	9,920 10,024	37,457 38,103	75,234 76,988
Prince Edward Island	157 148	1,422 1,455	3,088 3,018	3,360 3,488	602 305	24,875 24,811	35,130 35,625	9,888 10,621	104 103	277 252	1,834 1,866	4,849 5,029	10,107 11,327
Nova Scotia.....	1,030 1,010	22,594 21,943	48,106 48,496	73,233 76,614	11,081 11,046	242,555 262,126	435,677 459,226	174,613 188,064	618 576	1,474 1,428	29,427 28,668	107,123 103,020	179,445 193,394
New Brunswick	722 715	17,746 18,248	38,564 39,899	58,485 62,640	15,528 16,506	227,311 273,733	401,142 456,435	160,455 169,640	398 359	1,058 1,028	23,417 24,114	83,203 88,438	166,930 177,692
Quebec.....	11,104 10,984	326,087 328,780	703,647 708,632	1,166,282 1,209,412	160,472 167,795	4,353,341 4,709,352	7,936,346 8,447,963	3,465,633 3,589,618	6,136 5,675	21,658 20,905	460,889 463,521	1,887,095 1,964,343	3,617,326 3,747,047
Ontario.....	12,856 12,490	455,872 478,454	968,602 1,019,391	1,907,206 2,081,273	249,458 260,511	7,176,221 7,940,346	13,342,557 14,627,559	6,006,765 6,539,556	6,043 5,727	23,114 22,999	662,747 690,090	3,078,766 3,335,162	6,341,569 6,899,303
Manitoba.....	1,461 1,456	29,059 30,044	60,715 62,863	104,118 109,068	16,440 16,732	451,374 479,761	836,573 893,893	369,608 402,250	745 694	2,476 2,476	41,983 43,171	167,302 174,342	381,181 416,535
Saskatchewan.....	720 750	8,717 8,768	18,329 18,192	34,645 35,906	8,200 8,201	240,262 250,062	375,223 394,208	125,388 137,849	399 400	1,346 1,299	13,679 13,789	57,632 60,081	130,138 144,828
Alberta.....	1,681 1,694	27,667 28,031	57,701 58,483	110,597 114,947	18,025 19,686	695,715 676,337	1,017,236 1,085,963	373,998 394,317	840 783	2,939 2,975	41,881 42,391	181,408 189,041	391,240 413,818
British Columbia.....	3,622 3,563	77,085 80,090	155,238 162,309	247,333 376,076	52,078 54,699	1,184,832 1,280,478	2,194,599 2,383,243	980,705 1,060,772	1,700 1,520	5,053 5,720	105,466 109,357	501,435 543,002	1,007,763 1,090,727
Yukon and Northwest Territories.....	16 15	110 104	256 235	540 511	73 71	2,420 1,758	3,588 3,338	1,208 1,480	6 3	22 10	153 152	725 726	1,232 1,776
Canada.....	33,430 33,133	974,057 1,003,915	2,071,279 2,133,760	3,832,799 4,057,540	539,412 563,479	14,395,998 15,370,859	26,712,995 28,942,656	11,741,066 12,508,168	17,230 16,032	60,744 59,440	1,391,426 1,427,143	6,102,895 6,566,257	12,302,196 13,173,453

¹ Conceptually identical to previous years.² Cannot be reported separately for manufacturing and non-manufacturing activities but related substantially to manufacturing activity.³ Included with administrative and office employees in the manufacturing series published in previous years.⁴ Includes production and related workers, administrative and office employees, sales, distribution and other employees; excludes working owners and partners.⁵ Value of total shipments and other operational revenue less total cost of materials, supplies, fuels used and purchases of products and materials for re-sale in the same condition; all adjusted for inventory changes where required.

6.—Summary Statistics of Manufactures, by Province and Industry Group, 1963
 Note.—Based on the revised standard industrial classification and new establishment and total activity concepts.

Province and Industry Group	Estab-lish-ments	MANUFACTURING ACTIVITY ¹						TOTAL ACTIVITY				
		Production and Related Workers			Cost of Fuel and Elec-tricity ²	Cost of Materials and Supplies Used	Value of Ship-ments of Goods of Own Manu-facture	Working Owners and Partners ³		Total Employees ⁴	Total Value Added ⁵	
		Number	Man-Hours Paid	Wages				Number	With-drawals			
					'000	\$'000	\$'000			\$'000	\$'000	\$'000
Newfoundland												
Food and beverage industries.....	308	7,998	17,243	27,605	7,626	72,093	155,275	192	339	10,024	38,103	76,988
Leather industries.....	80	3,622	7,477	7,637	1,337	26,665	48,894	15	46	4,475	11,072	21,627
Textile industries.....	3	6	6	6	6	6	6	6	6	6	6	6
Knitting mills.....	2	6	6	6	6	6	6	6	6	6	6	6
Clothing industries.....	2	6	6	6	6	6	6	6	6	6	6	6
Wood industries.....	144	6	6	6	6	6	6	6	6	6	6	6
Furniture and fixture industries.....	5	6	1,050	1,230	173	2,709	4,766	147	190	535	1,529	1,943
Paper and allied industries ⁷	2	2,451	5,477	13,864	5,271	27,876	70,436	6	6	2,988	18,015	36,731
Printing, publishing and allied industries.....	28	255	552	880	69	766	3,554	14	49	431	1,548	2,701
Primary metal industries.....	1	6	6	6	6	6	6	6	6	6	6	6
Metal fabricating industries (except machinery and transportation equip-ment industries).....	9	168	395	644	40	1,768	3,376	6	6	219	870	1,472
Machinery industries (except electrical machinery).....	1	6	6	6	6	6	6	6	6	6	6	6
Transportation equipment industries.....	3	6	6	6	6	6	6	6	6	6	6	6
Non-metallic mineral products industries.....	15	399	933	1,542	484	3,014	7,279	5	9	530	2,239	4,464
Petroleum and coal products industries.....	1	6	6	6	6	6	6	6	6	6	6	6
Chemical and chemical products indus-tries.....	2	6	6	6	6	6	6	6	6	6	6	6
Miscellaneous manufacturing industries.....	8	58	121	168	12	254	667	3	7	76	245	420
Groups for which data cannot be shown....	...	582	1,240	1,641	188	9,040	16,305	8	38	770	2,585	7,630
Prince Edward Island												
Food and beverage industries.....	148	1,455	3,018	3,488	605	24,811	35,625	103	252	1,866	5,029	11,327
Leather industries.....	72	1,014	2,098	2,373	491	20,455	28,198	42	118	1,317	3,481	8,066
Textile industries.....	1	6	6	6	6	6	6	6	6	6	6	6
Wood industries.....	4	6	6	6	6	6	6	6	6	6	6	6
Furniture and fixture industries.....	37	73	155	146	18	279	637	38	52	82	194	352
Paper and allied industries.....	3	6	6	7	—	12	32	2	8	4	8	20
Printing, publishing and allied industries.....	1	6	6	6	6	6	6	6	6	6	6	6
Groups for which data cannot be shown....	8	1351	2771	3671	22	2611	1,3791	4	8	182	548	1,095

For footnotes, see end of table, p. 687.

6.—Summary Statistics of Manufactures, by Province and Industry Group, 1963—continued

Province and Industry Group	Estab-lish-ments	MANUFACTURING ACTIVITY ¹						TOTAL ACTIVITY				
		Production and Related Workers			Cost of Fuel and Elec-tricity ²	Cost of Materials and Supplies Used	Value of Ship-ments of Own Manufacture	Value Added	Working Owners and Partners ³		Total Employees ⁴	Total Value Added ⁵
		Number	Man-Hours Paid	Wages					Number	With-drawals		
					No.	'000	\$'000	\$'000			\$'000	\$'000
Prince Edward Island—concluded												
Primary metal industries.....	1	6	6	6	6	6	6	6	6	6	6	6
Metal fabricating industries (except machinery and transportation equip-ment industries).....	2	6	6	6	6	6	6	6	6	6	6	6
Transportation equipment industries.....	6	65	130	108	16	244	542	265	3	8	83	255
Non-metallic mineral products industries.....	6	17	35	48	11	77	237	142	3	5	26	80
Chemical and chemical products indus-tries.....	2	6	6	6	6	6	6	6	6	6	6	6
Miscellaneous manufacturing industries.....	4	10	21	18	2	20	90	65	3	17	13	32
Groups for which data cannot be shown....	...	138	297	330	46	3,463	4,510	1,009	8	41	159	430
Nova Scotia												
Food and beverage industries.....	1,010	21,943	48,496	76,614	11,046	262,126	459,226	188,064	576	1,428	28,668	107,020
Tobacco industries.....	320	6,784	14,809	16,894	2,848	95,474	147,008	50,503	140	6	9,295	26,775
Textile industries.....	9	6	6	6	6	6	6	6	6	6	6	6
Leather industries.....	7	1,177	2,331	2,398	122	5,922	11,776	5,842	—	—	1,216	3,289
Knitting mills.....	10	307	603	514	39	1,481	2,508	943	—	—	1,250	960
Wooding industries.....	327	2,040	4,798	4,916	622	11,843	23,210	10,700	272	—	2,502	6,454
Furniture and fixturs industries.....	33	197	427	499	27	891	2,001	1,086	23	62	240	666
Paper and allied industries.....	9	1,561	3,277	6,282	2,215	17,892	39,996	19,808	—	—	1,977	8,798
Printing, publishing and allied industries.....	74	776	1,606	2,907	158	2,955	13,731	10,629	28	104	1,335	5,519
Primary metal industries.....	5	6	6	6	6	6	6	6	6	6	6	6
Metal fabricating industries (except ma-chinery and transportation equipment industries).....	48	1,139	2,413	4,229	526	10,258	19,499	8,596	16	52	1,508	5,862
Machinery industries (except electrical machinery).....	7	236	483	844	70	743	2,515	1,757	2	8	379	1,695
Transportation equipment industries.....	71	3,515	7,462	13,882	758	15,966	37,569	21,024	53	133	4,135	16,838
Electrical products industries.....	3	6	6	6	6	6	6	6	6	6	6	6
Non-metallic mineral products industries.....	32	6	6	6	6	6	6	6	6	6	6	6
Petroleum and coal products industries.....	1	299	646	963	435	2,116	4,891	2,373	12	32	409	1,501
Chemical and chemical products indus-tries.....	14	125	269	474	136	3,399	6,468	2,831	1	8	286	1,322
Miscellaneous manufacturing industries.....	38	164	339	508	79	853	1,988	1,068	20	79	215	734
Groups for which data cannot be shown....	...	3,624	9,034	21,301	3,011	92,363	146,035	50,903	9	25	4,671	26,891

New Brunswick									
Food and beverage industries.....	715	18,248	39,899	62,610	16,506	273,733	456,435	169,610	359
Leather industries.....	247	5,382	11,856	14,195	2,790	133,633	174,651	51,450	119
Textile industries.....	4	215	404	517	13	1,020	2,003	1,891	—
Knitting mills.....	10	362	801	899	123	2,266	4,196	1,884	7
Clothing industries.....	5	281	625	515	12	285	975	683	—
Wood industries.....	233	2,519	5,837	6,803	741	16,636	33,947	15,829	167
Furniture and fixture industries.....	17	8,852	18,352	18,855	10,251	59,539	119,874	50,109	1
Paper and allied industries.....	18	3,895	8,352	2,238	117	2,442	8,874	6,318	11
Printing, publishing and allied industries.....	49	597	1,264	2,238	6	—	—	—	—
Primary metal industries.....	4	—	—	—	—	—	—	—	—
Metal fabricating industries (except machinery and transportation equip- ment industries).....	31	840	1,793	2,229	204	6,218	14,215	7,802	11
Machinery industries (except electrical machinery).....	8	—	—	—	6	—	—	—	—
Transportation equipment industries.....	4	—	—	—	6	—	—	—	—
Electrical products industries.....	8	—	—	—	253	7,380	12,702	5,625	—
Non-metallic mineral products industries.....	30	773	1,520	2,161	980	2,256	7,908	4,712	—
Petroleum and coal products industries.....	3	497	1,083	1,680	6	—	—	—	—
Chemical and chemical products industries.....	1	—	—	—	—	—	—	—	—
Miscellaneous manufacturing industries.....	10	124	256	479	119	3,967	5,583	1,597	1
Groups for which data cannot be shown.....	37	360	754	1,088	73	2,185	6,462	2,937	10
...	...	2,403	5,345	9,860	832	45,885	66,462	20,043	17
Quebec									
Food and beverage industries.....	10,954	328,780	708,632	1,209,412	167,795	4,709,352	8,447,903	3,589,618	5,675
Tobacco products industries.....	2,385	33,105	72,063	113,609	19,435	1,028,749	1,556,990	513,579	1,393
Rubber industries.....	31	5,707	11,146	24,518	701	104,085	186,344	93,373	4
Leather industries.....	287	14,196	30,373	37,374	1,239	37,402	142,480	43,633	94
Knitting mills.....	9,971	22,984	52,994	104,951	9,216	352,589	633,317	279,483	122
Clothing industries.....	1,521	50,327	100,637	168,069	1,938	833,624	1,001,328	369,510	30
Wood industries.....	1,719	16,229	37,748	46,959	1,364	128,075	258,293	104,750	1,203
Furniture and fixture industries.....	201	29,173	65,212	143,480	1,694	75,485	154,577	78,329	21
Paper and allied industries.....	989	12,067	24,911	55,255	52,708	409,913	876,862	413,329	547
Printing, publishing and allied industries.....	107	14,580	31,511	73,776	25,330	659,892	906,376	224,523	23
Primary metal industries.....	760	21,973	47,941	95,391	5,285	241,329	477,365	231,310	339
Metal fabricating industries (except machinery and transportation equip- ment industries).....	96	6,439	13,985	26,842	1,202	65,834	152,633	81,150	9
Machinery industries (except electrical machinery).....	111	15,326	24,310	74,290	3,550	152,710	326,563	175,444	56
Transportation equipment industries.....	113	15,483	32,939	63,118	8,259	186,177	383,029	182,402	7
Electrical products industries.....	395	10,574	23,736	44,979	13,894	86,159	235,710	136,933	107
Non-metallic mineral products industries.....	16	1,857	4,057	11,447	2,923	341,270	422,121	82,793	2
Petroleum and coal products industries.....	342	10,350	21,834	45,596	13,561	179,114	445,648	254,584	65
Chemical and chemical products industries.....	739	11,843	25,832	37,350	1,857	85,705	189,434	103,192	416
Miscellaneous manufacturing industries.....	...	...	...	...	...	...	...	...	...

For footnotes, see end of table, p. 687.

Printing, publishing and allied industries.	2,219	4,559	9,478	351	13,759	42,465	28,395	—	98	—	354	3,888	16,875	28,758
Primary metal industries.	14	2,332	4,947	5,260	34,801	140,940	101,045	—	—	—	—	2,767	13,630	101,363
Metal fabricating industries (except machinery and transportation equipment industries)	120	2,887	6,199	592	26,955	54,955	29,008	61	230	—	—	3,906	18,160	30,041
Machinery industries (except electrical machinery)	34	1,142	2,270	218	15,236	27,074	12,017	6	23	—	—	1,779	7,810	13,355
Transportation equipment industries	28	1,441	3,017	5,477	12,082	26,738	14,257	9	26	—	—	2,207	5,041	15,173
Electrical products industries	18	653	1,374	1,622	10,612	18,924	8,177	5	19	—	—	1,164	5,041	8,489
Non-metallic mineral products industries	68	994	2,139	4,184	2,262	30,964	18,423	17	70	—	—	1,466	18,769	18,769
Petroleum and coal products industries	4	324	687	1,881	39,830	55,221	13,326	—	—	—	—	766	3,789	13,735
Chemical and chemical products industries	34	314	650	1,117	9,045	17,751	8,518	3	8	—	—	790	3,460	9,754
Miscellaneous manufacturing industries	105	757	1,572	2,546	107	4,010	5,554	63	277	—	—	1,050	3,965	6,223
Groups for which data cannot be shown.	...	142	298	337	34	1,168	2,156	1	8	—	—	400	1,455	960
Saskatchewan.	750	8,768	18,192	35,906	250,062	394,208	137,849	400	1,289	13,789	60,081	144,828	54,784	144,828
Food and beverage industries	238	3,448	7,222	14,048	128,059	183,099	51,935	99	337	5,880	24,764	54,784	24,764	54,784
Textile industries	8	58	123	157	810	1,167	350	2	8	85	236	434	236	434
Clothing industries	16	230	444	564	1,890	3,439	1,803	2	8	304	1,035	2,045	1,035	2,045
Wood industries	143	821	1,677	2,613	344	5,323	11,909	112	165	1,134	3,831	6,898	3,831	6,898
Furniture and fixture industries	36	50	1,116	1,633	9	318	757	33	104	58	185	446	58	185
Paper and allied industries	7	173	379	670	159	2,249	3,930	1	8	206	847	1,501	206	847
Printing, publishing and allied industries	127	875	1,758	3,667	174	3,750	10,431	77	293	1,432	5,964	10,615	1,432	5,964
Primary metal industries	4	8	17	6	6	6	6	—	—	—	—	—	—	—
Metal fabricating industries (except machinery and transportation equipment industries)	58	701	1,494	2,764	145	11,067	18,360	29	99	986	4,213	8,222	986	4,213
Machinery industries (except electrical machinery)	14	157	313	587	41	1,599	3,562	2	8	377	1,072	2,180	377	1,072
Transportation equipment industries	6	19	41	71	6	161	396	3	8	184	1,053	2,332	184	1,053
Electrical products industries	4	6	6	6	6	6	6	—	—	—	—	—	—	—
Non-metallic mineral products industries	37	538	1,130	2,065	1,009	6,682	17,540	10	40	714	2,921	10,188	714	2,921
Petroleum and coal products industries	6	617	1,310	3,530	918	62,647	82,864	—	—	835	5,044	19,555	835	5,044
Chemical and chemical products industries	9	35	75	138	21	1,142	2,428	—	—	90	442	1,865	90	442
Miscellaneous manufacturing industries	44	192	395	613	24	889	2,419	30	164	261	925	1,757	261	925
Groups for which data cannot be shown.	...	854	1,714	4,255	2,839	22,878	47,998	—	—	1,243	6,649	24,105	1,243	6,649
Alberta.	1,694	28,031	58,453	114,947	676,337	1,055,963	394,317	783	2,975	42,391	189,041	413,818	42,391	189,041
Food and beverage industries	470	7,929	16,378	31,626	4,387	344,587	108,164	207	801	12,932	55,426	113,326	12,932	55,426
Rubber industries	5	6	6	6	6	6	6	—	—	—	—	—	—	—
Leather industries	7	6	6	6	6	6	6	—	—	—	—	—	—	—
Textile industries	21	266	585	1,119	63	5,977	9,381	11	58	381	1,761	3,385	381	1,761
Knitting mills	2	6	6	6	6	6	6	—	—	—	—	—	—	—
Clothing industries	20	1,424	2,803	3,421	41	8,812	17,562	3	6	1,610	5,030	9,234	1,610	5,030
Wood industries	294	3,450	7,112	10,881	1,546	26,256	9,235	203	502	4,438	14,846	26,039	4,438	14,846
Furniture and fixture industries	87	633	1,379	2,301	86	5,441	10,520	72	260	1,765	3,048	5,084	1,765	3,048
Paper and allied industries	21	876	1,904	4,074	1,577	21,231	46,053	—	—	1,230	6,280	23,687	1,230	6,280
Printing, publishing and allied industries	201	1,567	3,253	7,293	254	10,432	24,330	100	504	2,852	12,820	24,229	2,852	12,820

For footnotes, see end of table, p. 687.

6.—Summary Statistics of Manufactures, by Province and Industry Group, 1963—concluded

Province and Industry Group	Estab-lish-ments	MANUFACTURING ACTIVITY ¹							TOTAL ACTIVITY			
		Production and Related Workers			Cost of Fuel and Elec- tric- ity ²	Cost of Materials and Supplies Used	Value of Ship- ments of Goods and of Own Manu- facture	Working Owners and Partners ³		Total Employees ⁴		
		Number	Man- Hours Paid	Wages				Number	With- drawsals	Number	Salaries and Wages	
												Total Value Added ⁵
	No.		'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	
Alberta—concluded												
Primary metal industries.....	19	1,128	2,432	6,071	1,468	30,075	50,769	20,233	3	11	1,633	9,425
Metal fabricating industries (except machinery and transportation equip- ment industries).....	172	3,260	6,749	14,159	705	43,673	72,292	28,250	56	231	4,598	21,172
Machinery industries (except electrical machinery).....	26	503	1,024	2,077	222	9,304	14,918	6,213	1	8	1,216	6,048
Transportation equipment industries.....	40	1,190	2,401	4,987	136	6,626	16,162	9,403	10	45	1,732	7,973
Electrical products industries.....	10	236	485	724	69	4,732	8,595	3,377	—	—	398	1,496
Non-metallic mineral products indus- tries.....	96	2,558	5,506	10,936	2,834	23,817	65,945	39,689	16	54	3,317	15,214
Petroleum and coal products industries.....	13	805	1,720	4,828	1,937	94,094	125,304	28,285	2	8	1,562	9,551
Chemical and chemical products indus- tries.....	41	1,225	2,678	6,654	3,980	29,630	81,058	47,088	2	8	2,134	12,316
Miscellaneous manufacturing industries.....	149	586	1,226	2,073	128	3,531	8,749	5,258	93	479	7,360	37,372
Groups for which data cannot be shown...	...	395	848	1,724	204	8,116	16,150	7,853	4	4	706	3,256
British Columbia												
Food and beverage industries.....	3,563	80,090	162,309	376,076	54,699	1,280,478	2,383,242	1,069,772	1,520	5,720	109,357	543,002
Rubber industries.....	689	9,749	19,463	40,346	6,520	201,569	455,408	165,369	330	1,257	16,795	73,814
Leather industries.....	5	47	112	229	778	30	259	523	1	8	263	1,249
Textile industries.....	15	221	448	630	27	1,155	2,631	1,363	7	17	267	852
Knitting mills.....	40	579	1,185	1,801	6	5,493	10,001	4,475	19	68	744	2,783
Clothing industries.....	7	6	6	6	6	6	6	6	6	6	6	6
Wood industries.....	53	1,490	2,895	4,137	86	8,251	16,456	8,240	14	33	1,721	5,306
Furniture and fixture industries.....	1,064	33,181	66,329	150,638	13,624	397,411	711,716	306,663	469	1,489	38,681	183,968
Paper and allied industries.....	219	1,521	3,034	5,613	205	12,258	24,726	12,390	152	580	1,874	7,742
Printing, publishing and allied industries.....	46	8,968	18,815	50,397	19,430	150,629	380,604	209,087	30	12,219	73,261	209,750
Primary metal industries.....	307	2,444	4,793	12,866	485	16,192	60,623	41,061	111	447	4,746	24,318
Metal fabricating industries (except machinery and transportation equip- ment industries).....	38	5,310	11,095	28,012	4,082	125,333	208,251	79,261	8	44	7,336	41,538
Machinery industries (except electrical machinery).....	336	4,530	9,168	22,061	1,234	54,216	109,154	54,504	94	402	6,325	32,337
Transportation equipment industries.....	54	1,534	3,085	7,513	361	17,465	34,319	17,620	5	40	2,604	13,856
Electrical products industries.....	135	4,353	9,021	23,266	622	34,944	80,275	45,395	63	199	5,436	30,710
Non-metallic mineral products industries.....	123	1,568	3,238	7,656	2,732	16,199	39,894	21,177	43	136	2,335	11,475

Petroleum and coal products industries ¹	8	680	1,461	4,121	1,266	89,685	116,651	23,588	—	—	978	6,249	24,155
Chemical and chemical products industries.....	105	1,802	3,376	7,817	3,326	37,078	83,737	42,486	12	62	2,984	14,372	44,951
Miscellaneous manufacturing industries.....	285	1,254	2,570	4,963	239	6,458	17,121	10,429	184	894	1,805	7,928	15,542
Groups for which data cannot be shown.....	...	336	706	1,020	85	2,998	5,832	2,938	2	8	705	3,407	2,667
Yukon and Northwest Territories.....	15	104	235	511	71	1,758	3,338	1,480	3	10	152	726	1,776
Food and beverage industries.....	4	7	15	19	12	74	223	136	—	—	17	69	142
Wood industries.....	7	28	41	78	23	133	351	217	2	8	47	142	223
Printing, publishing and allied industries.....	3	69	179	414	36	1,551	2,764	1,127	1	8	88	514	1,410
Petroleum and coal products industries.....	1												

¹ Conceptually identical to previous years.
² Cannot be reported separately for manufacturing and non-manufacturing activities but related substantially to manufacturing activity.
³ Included with administrative and office employees in the manufacturing series published in former years.
⁴ Includes production and related workers, administrative and office employees, sales, distribution and materials for re-sale in the same condition; all adjusted for inventory changes where required.
⁵ Value of total shipments and other operational revenue less total cost of materials, supplies, fuels used and purchases of products and materials for re-sale in the same condition; all adjusted for inventory changes where required.
⁶ Confidential under the secrecy provisions of the Statistics Act; included in "Groups for which data cannot be shown."
⁷ Pulp and paper mills only; publication of these figures was authorized by the firms concerned.
⁸ Confidential; included in provincial total.
⁹ Petroleum refineries only; data for two establishments in "Other petroleum and coal products industries", included in "Groups for which data cannot be shown."
¹⁰ Petroleum refineries only; data for three establishments in "Other petroleum and coal products industries", included in "Groups for which data cannot be shown."

Among the provinces, New Brunswick showed the largest proportionate increase in value of shipments of own manufacture in 1963 over 1962; the dollar value for that province was \$456,435,000, representing 1.6 p.c. of the total for Canada and a 13.8-p.c. increase over the previous year. As in other years, Ontario's share of total shipments was the largest, in 1963 amounting to \$14,627,559,000 or 50.5 p.c. of Canada total; the increase of 9.6 p.c. over 1962 was the second largest among the provinces. Quebec recorded the second largest shipments, which amounted to \$8,447,903,000, representing 29.2 p.c. of the total and a 6.4-p.c. increase over 1962. Figures for the other provinces were: British Columbia, with shipments of \$2,383,242,000 or 8.2 p.c. of the total and an increase of 8.6 p.c. over 1962; Alberta with \$1,085,963,000 or 3.8 p.c. of the total and a 6.8-p.c. increase; Manitoba with \$893,893,000 or 3.1 p.c. of the total and a 6.9-p.c. increase; Nova Scotia with \$459,226,000 or 1.6 p.c. of the total and a 7.6-p.c. increase; Saskatchewan with \$394,208,000 or 1.4 p.c. of the total and a 5.1-p.c. increase; Newfoundland with \$155,275,000 or 0.5 p.c. of the total and a 7.9-p.c. increase; and Prince Edward Island with \$35,625,000 or 0.1 p.c. of the total and a 1.4-p.c. increase.

The number of employees was higher in 1963 than in 1962 in all provinces except Nova Scotia; increases ranged from 4.1 p.c. in Ontario to 0.6 p.c. in Quebec. In Nova Scotia the decrease was 2.6 p.c., with all groups except textiles, knitting mills, printing, publishing and allied industries, petroleum and coal products and miscellaneous manufacturing industries showing declines.

Section 3.—Size of Manufacturing Establishments Based on Employment and Shipments

The size of manufacturing establishments may be measured in different ways for different purposes. The value of annual shipments provides an interesting basis for comparing the importance of large and small establishments in a particular year, although price changes reduce the value of such comparisons between different years. The number of employees is useful for many purposes, although its significance varies from industry to industry and between widely separated years with varying use of capital equipment, different production processes and the like. Factors tending to change the size of manufacturing establishments over the years have conflicting effects. Automation, for instance, reduces the employment required for a given production volume in an establishment but may increase establishment size in an industry if heavy capital investment requirements make larger production units more economical or if lower production costs expand the market. The long-term growth of the market favours the growth of establishment size in many industries but, at the same time, it may make room for smaller establishments. In addition, developments in the sphere of marketing may affect the size pattern of production units in an industry through their impact on the fortunes of particular companies. Growth of a new or existing industry characterized by large or small establishments will increase the importance of establishments of that size in Canadian manufacturing as a whole; similarly, a differing "industry mix" affects comparisons among provinces. Introduction in 1961 of the new concept of the establishment and of the new standard industrial classification means that size breakdowns for 1961 and 1962 are not directly comparable with those for earlier years. These changes in technical definitions (described in the 1965 Year Book, pp. 655-656) reduced the number of very small establishments considerably but did not alter significantly the pattern of percentages of employment and shipments accounted for by different size classes.

Size Based on Total Employed.—Establishments with total employment of 200 or more accounted for 49.5 p.c. of all wage and salary earners in the manufacturing industries in 1962. The 112 establishments with employment of 1,000 or more accounted for 17.3 p.c. of the wage and salary earners; 60 of these were in Ontario, 35 in Quebec, 11 in Western Canada and six in the Atlantic Provinces. (Working owners and partners are included in employment in defining establishment size.)

7.—Establishments and Employment in the Manufacturing Industries, by Number Employed per Establishment, 1949, 1955, 1961 and 1962

Size Group ¹	Estab- lishments	Em- ployees	Working Owners and Partners	Pro- portion of Total Em- ployment ¹	Estab- lishments	Em- ployees	Working Owners and Partners	Pro- portion of Total Em- ployment ¹
	1949				1955 ²			
	No.	No.		p.c.	No.	No.		p.c.
Under 5 employed.....	16,647	34,865		3.0	17,602	36,340		2.8
5 to 14 ".....	9,133	75,452		6.4	9,864	81,471		6.3
15 to 49 ".....	5,967	159,012		13.6	6,340	169,575		13.1
50 to 99 ".....	1,905	132,069		11.3	2,082	144,411		11.1
100 to 199 ".....	1,114	156,084		13.3	1,175	163,091		12.6
200 to 499 ".....	694	213,130		18.2	739	227,667		17.5
500 to 999 ".....					243	167,720		12.9
1,000 to 1,499 ".....	332	391,455		33.4	76	91,840		7.1
1,500 or over.....					61	200,413		15.4
Head offices.....	—	9,110		0.8	—	15,933		1.2
Totals.....	35,792	1,171,207		100.0	38,182	1,298,461		100.0
	1961				1962			
	No.	No.	No.	p.c.	No.	No.	No.	p.c.
Under 5 employed.....	12,355	16,855	10,673	2.0	12,275	16,164	11,109	1.9
5 to 14 ".....	9,128	71,175	5,149	5.6	9,173	71,545	5,005	5.4
15 to 49 ".....	6,826	184,443	1,054	13.5	6,847	185,575	993	13.2
50 to 99 ".....	2,447	169,424	88	12.4	2,468	170,401	97	12.1
100 to 199 ".....	1,376	190,421	17	13.9	1,396	193,413	20	13.7
200 to 499 ".....	867	261,032	4	19.0	901	272,874	6	19.4
500 to 999 ".....	245	170,902	—	12.5	258	179,976	—	12.8
1,000 to 1,499 ".....	55	68,743	—	5.0	56	68,456	—	4.9
1,500 or over.....	53	165,332	—	12.1	56	175,219	—	12.4
Head offices ³	—	54,988	—	4.0	—	57,803	—	4.1
Totals.....	33,352	1,353,315	16,985	100.0	33,430	1,391,426	17,230	100.0

¹ Includes working owners and partners. ² Newfoundland included from 1955. ³ Not comparable with years prior to 1961 when coverage of head offices was incomplete.

8.—Establishments in the Manufacturing Industries classified by Number Employed and by Province, 1962

Province or Territory	Number Employed ¹									Total
	Up to 4	5 to 14	15 to 49	50 to 99	100 to 199	200 to 499	500 to 999	1,000 to 1,499	1,500 or Over	
	No.	No.	No.	No.	No.	No.	No.	No.	No.	
Newfoundland.....	192	48	45	24	14	6	—	—	2	331
Prince Edward Island.....	88	37	26	2	3	1	—	—	—	157
Nova Scotia.....	424	310	189	59	22	18	6	1	1	1,030
New Brunswick.....	292	220	118	45	26	15	4	1	1	722
Quebec.....	4,205	2,909	2,311	830	442	278	94	16	19	11,104
Ontario.....	4,009	3,437	2,751	1,076	678	455	120	30	30	12,586
Manitoba.....	607	353	300	112	55	26	6	2	—	1,461
Saskatchewan.....	304	236	123	30	16	10	1	—	—	720
Alberta.....	656	558	292	90	47	30	8	—	—	1,681
British Columbia.....	1,490	1,061	689	199	93	62	19	6	3	3,622
Yukon and Northwest Territories.....	8	4	3	1	—	—	—	—	—	16
Canada.....	12,275	9,173	6,847	2,468	1,396	901	258	56	56	33,430

¹ Includes working owners and partners.

Size Based on Shipments.—There were 890 manufacturing establishments in 1962 with shipments of goods of own manufacture of \$5,000,000 or more. Of these, Ontario had

438 or 49 p.c., Quebec had 271, and the Atlantic Provinces had 27—about one tenth of the Quebec number; the Prairie Provinces with 73 and British Columbia with 81 accounted for about 8 p.c. and 9 p.c., respectively, of the national total.

**9. —Establishments and Shipments in the Manufacturing Industries,
by Shipments per Establishment, 1961 and 1962**

Value Group	Estab- lish- ments	Value of Ship- ments of Goods of Own Manu- facture	Average per Estab- lish- ment	Pro- portion of Total Ship- ments	Estab- lish- ments	Value of Ship- ments of Goods of Own Manu- facture	Average per Estab- lish- ment	Pro- portion of Total Ship- ments
	1961				1962			
	No.	\$'000	\$'000	p.c.	No.	\$'000	\$'000	p.c.
Under \$25,000.....	9,248	106,843	12	0.4	8,698	100,656	12	0.4
\$25,000 but under \$50,000.....	4,676	168,049	36	0.7	4,638	167,946	36	0.6
50,000 " " 100,000.....	4,562	328,270	72	1.4	4,571	329,371	72	1.2
100,000 " " 200,000.....	4,255	609,922	143	2.5	4,346	624,101	144	2.3
200,000 " " 500,000.....	4,554	1,461,624	321	6.0	4,736	1,520,254	321	5.7
500,000 " " 1,000,000.....	2,399	1,688,790	704	6.9	2,482	1,746,999	704	6.5
1,000,000 " " 5,000,000.....	2,872	6,116,504	2,130	25.2	3,089	6,507,438	2,120	24.4
5,000,000 or over.....	786	12,830,184	17,596	56.9	890	15,716,231	17,659	58.8
Totals and Averages.....	33,352	24,310,184	729	100.0	33,430	26,712,995	799	100.0

**10. —Establishments in the Manufacturing Industries classified by Value of Shipments
of Goods of Own Manufacture and by Province, 1962**

Province or Territory	Up to \$24,999	\$25,000 to \$99,999	\$100,000 to \$499,999	\$500,000 to \$999,999	\$1,000,000 to \$4,999,999	\$5,000,000 or Over	Total
	No.	No.	No.	No.	No.	No.	No.
Newfoundland.....	181	50	55	18	24	4	488
Prince Edward Island.....	69	40	36	6	5		
Nova Scotia.....	403	260	240	55	60	12	1,020
New Brunswick.....	243	232	134	54	48		722
Quebec.....	2,833	3,125	3,174	833	808	271	11,104
Ontario.....	2,750	3,268	3,611	1,039	1,480	438	12,586
Manitoba.....	444	371	378	114	135	19	1,461
Saskatchewan.....	233	220	158	50	44	15	720
Alberta.....	458	538	419	99	128	39	1,681
British Columbia, Yukon and North- west Territories.....	1,084	1,105	877	214	277	81	3,638
Canada.....	8,698	9,209	9,082	2,482	3,069	890	33,430

Section 4.—Federal Assistance to Manufacturing

The federal Department of Industry has, since it was established in 1963, rendered assistance to industry, provincial governments, trade associations and other groups which have approached the Department regarding a wide variety of industrial subjects. A number of new programs have been developed to foster the growth of manufacturing in Canada.

Automotive Program.—The Canada-United States Agreement on Automotive Products, signed by Prime Minister Pearson and President Johnson on Jan. 16, 1965, provided for the removal of tariff and other impediments to trade between the two countries in motor vehicles and original equipment parts.

The basic objective of the plan is to provide a rapidly expanding market for Canadian motor vehicle and component producers. In this way production, trade, employment and efficiency will be increased to a substantial degree. In order to enable Canadian vehicle and parts producers to achieve these objectives, a number of important features were incorporated into the program. The most important of these safeguards was provided by the undertaking of Canadian motor vehicle manufacturers to expand very considerably Canadian production over a period of three and a half years. Whereas Canada has been producing some 4.0 p.c. of total North American automotive production, it has been consuming about 7.5 p.c.; as a result of the new program, Canada should be producing a substantially larger share by the time vehicles for the 1968 model year are available. Canadian exports of vehicles and parts had already increased by 95 p.c. in the first six months of 1965 over the same period the previous year and employment in the motor vehicle and parts industries had increased by 13 p.c. Since the announcement of the Canada-United States automotive agreement, there have been numerous announcements of new plants and expansions to existing plants in the Canadian automotive industries.

Adjustment Assistance for Firms in the Automotive Parts Industries.—An economic expansion of the magnitude of that at present taking place in the automotive industries was bound to result in certain transitional adjustments. The automotive program offers new large-scale opportunities to Canadian automotive parts manufacturers for expanded production, rationalization of output and reduced costs. As a result, many Canadian parts makers must engage in substantial re-equipment and expansion programs.

An Adjustment Assistance Program has been established to make loans available to those automotive products manufacturers who have a reasonable prospect of profitable operation but who otherwise would be prevented from doing so through lack of financing. These loans are made for the purpose of acquisition, construction, installation, modernization or development of facilities or machinery and for use as working capital. They carry an interest rate of 6 p.c. and are repayable over not more than 20 years for land and buildings and 10 years for other purposes.

Designated Area Program.—The Tax Incentive Program introduced Jan. 29, 1964 to foster economic development in areas of high and chronic unemployment has been replaced by a program of cash grants to new and expanding manufacturing and processing facilities as provided in the Area Development Incentives Act passed on June 30, 1965. New criteria for the designation of areas take into account not only conditions of high and chronic unemployment and slow economic growth, but now also consider the degree of under-employment as measured by low non-farm family income.

More than 250 firms indicated their intention to establish facilities in designated areas under the old program and to invest more than \$560,000,000. More than 18,500 new jobs were to be provided directly by these factories and a like number of additional jobs associated with supply and service industries. The new program embraces large regions of the country, in all 10 provinces, with 65 National Employment Service office areas and 16 counties and census divisions being designated. The new program covers approximately 16 p.c. of the labour force, compared with 7½ p.c. under the old program.

Program for the Advancement of Industrial Technology (PAIT).—In 1965, the Department initiated a Program for the Advancement of Industrial Technology to promote the application of scientific and technological advances to the development of new products and processes in Canadian industry. The basic concept of the program is to provide loans to help industry improve its technological capability. Projects which involve a genuine technical advance and which, if successful, offer good prospects for commercial exploitation are eligible for support. Assistance under the program was made available to individual firms or groups of firms that have the capabilities and facilities to undertake such development work and to manufacture and market the results. This program was designed to

improve the position of Canadian industry in relation to its foreign competitors. It is also expected that it will help to create an industrial environment attractive to Canada's best-qualified scientific, technical and managerial personnel.

Industrial Design.—The largest project in the field of industrial design launched by the Department to date is Canadian Design '67. Initiated in March 1965 in co-operation with the National Design Council, this program is intended to help Canadian industry take advantage of the excellent business opportunities generated by Canada's centennial celebrations and Expo 67. It offers Canadian designers and manufacturers greater opportunities to provide the thousands of new or unique products required to construct, furnish and equip the numerous buildings for centennial projects and for Expo 67, as well as the giftware and other souvenirs for the millions of visitors who will be in the country during 1967.

The program provides a means for identification of types and volume of products required for centennial year activities and Expo 67, so that this information can be passed on to potential Canadian designers and manufacturers to enable them to meet these needs. A reference guide of well-designed Canadian products, which have been pre-screened by independent design juries, is being compiled. This guide, in catalogue form, is circulated to buyers, architects, engineers, distributors and others and sample products taken from it are being displayed both nationally and internationally.

Defence Product-Development Assistance.—Since November 1964, new commitments totalling approximately \$20,000,000 have been made under the Defence Development Assistance Program to foster the growth of a development capability in Canadian industry in support of the Production-Sharing Program. The projects supported under the program to meet present or anticipated requirements of military services of the United States and other allied governments include: the Twin Otter Aircraft Turbinization Project at DeHavilland (Toronto); McGill University's HARP (High Altitude Research Program) (Montreal); the Vehicular Navigational Aid at Aviation Electric (Montreal); Battlefield Sound Ranging at Computing Devices (Ottawa); Airborne Radar Sensors at Marconi (Montreal); Aircraft Systems Trainer at Canadian Aviation Electronics (Montreal); and the OT-4 Stationary Gas Turbine Engine at Orenda (Toronto). For the year ended Mar. 31, 1966, the Government has approved a cash authorization of \$25,000,000 for this program.

Canadian Government Shipbuilding Procurement Policy.—Detailed studies carried out by the Department, and concurred in by the Interdepartmental Committee on Shipbuilding, have led to the development of an improved shipbuilding procurement policy. Approved by the Cabinet on July 16, 1965, the new policy has as its objectives reduced cost to the government and increased stability and efficiency in the industry. This policy, which involves procurement on the basis of national tendering wherever possible, embodies a transitional plan of West Coast shipyards because of the special cost structure of the industry in that area.

Industrial Missions.—A number of industrial missions to the United States and Europe have been organized. The purpose of these missions is to enable Canadian business men to see at first hand the latest developments that are taking place outside Canada in their particular industries. The information gained is prepared in report form and circulated to Canadian industry so that practical application of new ideas and processes obtained may be of benefit to manufacturers as a whole.

CHAPTER XVII.—CAPITAL EXPENDITURES, CONSTRUCTION AND HOUSING*

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

This Chapter provides data on the capital expenditures made by all sectors of the Canadian economy on construction and on machinery and equipment, together with summaries of other available statistics for the construction industry. Section 1 shows the amounts spent by each of the various industrial or economic sectors. Section 2 brings together a number of summaries of related series on construction activity—value of work performed by type of structure, value of materials used, salaries and wages paid and numbers employed, contracts awarded and building permits issued. Government aid to house-building, construction of dwelling units and housing statistics of the 1961 Census are covered in Section 3.

Section 1.—Capital Expenditures on Construction and on Machinery and Equipment

Capital expenditures† in all sectors of the economy amounted to \$10,827,000,000 in 1964, an increase of 15.3 p.c. over the 1963 total of \$9,393,000,000. The over-all increase resulted from a 17.9-p.c. rise in the purchase of machinery and equipment and a 13.9-p.c. increase in construction expenditures. Throughout most of the period after 1946, capital outlays in Canada increased each year, reaching a peak in 1957. A four-year decline followed but a significant increase was shown in 1962 and a further strengthening occurred in 1963 and 1964. Capital spending in current dollars exceeded the 1957 total in both 1963 and 1964 but, in constant dollars, the 1957 level was not exceeded until 1964 when the capital program was recorded at 8.5 p.c. above the previous peak. These expenditures on the expansion, modernization or renewal of the nation's production facilities represented 23 p.c. of the gross national product and thus provide a significant indicator of economic activity in Canada.

* Except where otherwise noted, prepared in the Business Finance Division, Dominion Bureau of Statistics.

† Capital expenditure figures for 1963 and earlier years are final and those for 1964 are preliminary and subject to revision at a later date. Capital expenditures for 1963 and 1964, as well as intentions for 1965, appear in greater detail in the publication *Private and Public Investment in Canada, Outlook 1965*, available from the Queen's Printer (Catalogue No. 61-205).

As shown in Table 1, construction accounts for about two thirds of the total capital expenditures each year and machinery and equipment for about one third. Recently, there has been a slight upward trend in the proportion of the total represented by the purchase of machinery and equipment, which rose from 32.5 p.c. in 1961 to 35.2 p.c. in 1964. The proportion for housing construction also rose in the same period, moving upward from 17.9 p.c. to 18.7 p.c., but the non-residential construction outlays dropped from 49.6 p.c. of the total to 46.1 p.c. The latter decline accounted for the lower proportion spent on construction as a whole.

1.—Capital Expenditures on Construction and on Machinery and Equipment, in Current and Constant (1957) Dollars, 1955-64

NOTE.—Actual expenditures 1955-63; preliminary actual 1964.

Year	Capital Expenditures						Total Expenditure as Percentage of Gross National Product	
	Construction		Machinery and Equipment		Totals		Current Dollars	Constant 1957 Dollars
	Current Dollars	Constant 1957 Dollars	Current Dollars	Constant 1957 Dollars	Current Dollars	Constant 1957 Dollars		
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	p.c.	p.c.
1955.....	4,169	4,512	2,075	2,305	6,244	6,817	23.0	23.5
1956.....	5,273	5,445	2,761	2,888	8,034	8,333	26.3	26.4
1957.....	5,784	5,784	2,933	2,933	8,717	8,717	27.3	27.3
1958.....	5,830	5,865	2,534	2,467	8,364	8,332	25.4	25.9
1959.....	5,709	5,557	2,708	2,590	8,417	8,147	24.1	24.5
1960.....	5,453	5,224	2,809	2,636	8,262	7,860	22.8	23.0
1961.....	5,518	5,331	2,654	2,455	8,172	7,786	21.8	22.3
1962.....	5,787	5,388	2,928	2,643	8,715	8,031	21.6	21.8
1963.....	6,157	5,623	3,236	2,859	9,393	8,482	21.8	21.8
1964.....	7,011	6,188	3,816	3,270	10,827	9,458	23.0	22.7

All economic sectors with the exception of institutional services, reported increased capital outlays in 1964 over 1963. The mining industry showed an increase of \$112,000,000, reflecting an expanding program in metal mines, especially iron, and in oil and gas well development. Expenditures on new manufacturing facilities increased by \$457,000,000, mainly as a result of higher outlays for newsprint- and pulp-making facilities and increased spending by transportation equipment firms, textile companies and firms in the primary metal producing industry. Capital expenditures for utilities (including transportation, communication and storage, and public utilities such as gas, water and electricity) were up by \$306,000,000. Much of this increase resulted from additions to facilities for power generation, expansion of railway equipment, continued acceleration in the construction of the rapid-transit systems in Toronto and Montreal, and an expanded gas pipeline program. The 1964 housing activity showed continued strength with an increase of \$315,000,000 over 1963. Trade, finance and commercial services also increased expenditures but by smaller amounts. Institutional services (including hospitals, schools, universities, churches and welfare institutions) recorded a decrease of \$107,000,000 resulting mainly from completion of much of the technical school building program, although this decline was offset to some extent by an increase in construction by universities. Capital outlays by governments at all levels increased by \$186,000,000 over 1963. Government departments as defined for capital expenditure purposes include the part of government activity (excluding institutions) generally dependent on tax revenues for financial support as opposed to activities directly producing revenues on a service-rendered basis. Spending by provincial governments increased by \$143,000,000 and spending by municipal governments by \$19,000,000 but the Federal Government spent \$23,000,000 more than in the preceding year. One of the major activities of government, involving expenditures at the federal, provincial and municipal levels, is the roads, highways, bridges and streets program.

All provinces except Newfoundland and Prince Edward Island contributed to the increase in capital spending in 1964; however, the capital outlays in the two exceptions were almost the same as in 1963. An advance of 36.0 p.c. was recorded by New Brunswick and one of 30.0 p.c. by British Columbia, both reflecting, in part, new pulp-making facilities. In British Columbia, substantial increases in the electric power programs and in the construction of gas pipelines were also contributing factors. An increase exceeding the national rate of 15.3 p.c. was also registered by Quebec, which recorded a rise of 19.4 p.c. over the preceding year. Although the requirements for the 1967 World Exhibition gave a particular impetus to capital spending in that province, the large increase was attributed to higher spending on manufacturing plants, especially for pulp and paper production, markedly higher outlays for electric power plants and an increased provincial government program. In the other provinces the increases were fairly large but below the national average for 1964. The increases in Nova Scotia, Ontario, Manitoba, Saskatchewan and Alberta were 13.7 p.c., 11.9 p.c., 11.4 p.c., 8.6 p.c. and 8.6 p.c., respectively. However, it should be pointed out that sharp year-to-year fluctuations in capital outlays in any one province are often associated with changing phases of a few large projects.

2.—Summary of Capital and Repair Expenditures, by Economic Sector, 1963 and 1964

NOTE.—Actual expenditures 1963; preliminary actual 1964.

(Millions of dollars)

Type of Enterprise and Year	Capital			Repair			Capital and Repair		
	Con- struc- tion	Ma- chinery and Equip- ment	Total	Con- struc- tion	Ma- chinery and Equip- ment	Total	Con- struc- tion	Ma- chinery and Equip- ment	Total
Agriculture and fishing.....1963	189	573	762	75	163	238	264	736	1,000
.....1964	198	622	820	78	173	251	276	795	1,071
Forestry.....1963	28	32	60	15	31	46	43	63	106
.....1964	34	39	73	17	32	49	51	71	122
Mining, quarrying and oil wells.....1963	371	150	521	35	122	157	406	272	678
.....1964	458	175	633	41	120	161	499	295	794
Manufacturing.....1963	355	1,003	1,358	140	661	801	495	1,664	2,159
.....1964	445	1,370	1,815	138	716	854	583	2,086	2,669
Utilities.....1963	1,111	660	1,771	281	493	774	1,392	1,153	2,545
.....1964	1,355	722	2,077	292	517	809	1,647	1,239	2,886
Construction.....1963	11	124	135	4	141	145	15	265	280
.....1964	12	139	151	4	158	162	16	297	313
Housing.....1963	1,713	—	1,713	544	—	544	2,257	—	2,257
.....1964	2,028	—	2,028	577	—	577	2,605	—	2,605
Trade (wholesale and retail).....1963	136	202	338	40	48	88	176	250	426
.....1964	130	221	351	41	46	87	171	267	438
Finance, insurance and real estate.....1963	231	42	273	17	5	22	248	47	295
.....1964	280	48	328	20	5	25	300	53	353
Commercial services.....1963	101	206	307	15	58	73	116	264	380
.....1964	103	214	317	16	60	76	119	274	393
Institutional services.....1963	757	116	873	60	15	75	817	131	948
.....1964	652	114	766	59	18	77	711	132	843
Government departments.....1963	1,154	128	1,282	333	60	393	1,487	188	1,675
.....1964	1,316	152	1,468	356	59	415	1,672	211	1,883
Totals.....1963	6,157	3,236	9,393	1,559	1,797	3,356	7,716	5,033	12,749
.....1964	7,011	3,816	10,827	1,639	1,904	3,543	8,650	5,720	14,370

Details of some of the above economic sectors are given in Table 3. The value of construction work performed, together with statistics of contracts awarded and building permits issued in recent years, is covered in Section 2 of this Chapter. Housing is treated separately in Section 3.

3.—Capital and Repair Expenditures for Certain Economic Sectors, 1963 and 1964

NOTE.—Actual expenditures 1963; preliminary actual 1964.

(Millions of dollars)

Type of Enterprise and Year	Capital			Repair			Capital and Repair		
	Con- struc- tion	Ma- chinery and Equip- ment	Total	Con- struc- tion	Ma- chinery and Equip- ment	Total	Con- struc- tion	Ma- chinery and Equip- ment	Total
MANUFACTURING									
Foods and beverages.....1963	52.9	107.8	160.7	15.7	68.3	84.0	68.6	176.1	244.7
1964	57.2	119.9	177.1	16.3	67.9	84.2	73.5	187.8	261.3
Tobacco products.....1963	1.5	6.7	8.2	0.7	3.1	3.8	2.2	9.8	12.0
1964	2.6	5.5	8.1	0.7	4.0	4.7	3.3	9.5	12.8
Rubber.....1963	3.0	12.9	15.9	1.3	10.4	11.7	4.3	23.3	27.6
1964	4.7	17.1	21.8	1.2	11.8	13.0	5.9	28.9	34.8
Leather.....1963	1.7	3.7	5.4	0.6	3.1	3.7	2.3	6.8	9.1
1964	1.3	3.0	4.3	0.4	2.9	3.3	1.7	5.9	7.6
Textile.....1963	10.9	38.8	49.7	4.5	23.2	27.7	15.4	62.0	77.4
1964	16.2	75.4	91.6	4.8	22.2	27.0	21.0	97.6	118.6
Clothing and knitting mills..1963	2.3	13.7	16.0	1.3	5.0	6.3	3.6	18.7	22.3
1964	2.5	12.7	15.2	1.3	5.4	6.7	3.8	18.1	21.9
Wood.....1963	12.5	38.0	50.5	6.4	36.9	43.3	18.9	74.9	93.8
1964	17.2	54.3	71.5	6.6	38.3	44.9	23.8	92.6	116.4
Furniture and fixtures.....1963	4.7	5.7	10.4	1.0	2.9	3.9	5.7	8.6	14.3
1964	5.0	5.7	10.7	1.2	2.8	4.0	6.2	8.5	14.7
Paper and allied industries..1963	40.3	164.8	205.1	13.0	108.0	121.0	53.3	272.8	326.1
1964	72.9	257.1	330.0	11.6	125.0	136.6	84.5	382.1	466.6
Printing, publishing and allied industries.....1963	15.5	30.3	45.8	2.4	7.7	10.1	17.9	38.0	55.9
1964	14.1	32.9	47.0	2.8	7.7	10.5	16.9	40.6	57.5
Primary metals.....1963	44.4	136.8	181.2	16.6	166.0	182.6	61.0	302.8	363.8
1964	63.0	192.1	255.1	16.8	189.8	206.6	79.8	381.9	461.7
Metal fabricating.....1963	14.6	37.9	52.5	5.7	30.2	35.9	20.3	68.1	88.4
1964	17.4	51.7	69.1	5.9	30.4	36.3	23.3	82.1	105.4
Machinery.....1963	14.2	23.3	37.5	3.2	11.8	15.0	17.4	35.1	52.5
1964	20.0	32.5	52.5	3.5	12.2	15.7	23.5	44.7	68.2
Transportation equipment...1963	27.1	52.3	79.4	13.1	42.0	55.1	40.2	94.3	134.5
1964	48.9	88.0	136.9	9.3	45.8	55.1	58.2	133.8	192.0
Electrical products.....1963	9.5	32.6	42.1	4.3	21.1	25.4	13.8	53.7	67.5
1964	12.0	39.7	51.7	4.0	23.3	27.3	16.0	63.0	79.0
Non-metallic mineral products.....1963	13.7	38.9	52.6	5.6	52.7	58.3	19.3	91.6	110.9
1964	18.7	57.8	76.5	5.4	53.9	59.3	24.1	111.7	135.8
Petroleum and coal products..1963	37.9	8.6	46.5	30.2	5.1	35.3	68.1	13.7	81.8
1964	19.2	4.4	23.6	31.6	5.4	37.0	50.8	9.8	60.6
Chemicals and chemical products.....1963	39.5	78.5	118.0	11.9	54.6	66.5	51.4	133.1	184.5
1964	44.5	90.2	134.7	11.7	59.4	71.1	56.2	149.6	205.8
Miscellaneous.....1963	8.5	20.2	28.7	2.0	8.5	10.5	10.5	28.7	39.2
1964	7.8	22.7	30.5	2.4	7.5	9.9	10.2	30.2	40.4
Capital items charged to operating expenses.....1963	—	151.2	151.2	—	—	—	—	151.2	151.2
1964	—	207.8	207.8	—	—	—	—	207.8	207.8
Totals, Manufacturing...1963	354.7	1,002.7	1,357.4	139.5	660.6	800.1	494.2	1,663.3	2,157.5
1964	445.2	1,370.5	1,815.7	137.5	715.7	853.2	582.7	2,086.2	2,668.9

3.—Capital and Repair Expenditures for Certain Economic Sectors, 1963 and 1964—continued

Type of Enterprise and Year	Capital			Repair			Capital and Repair		
	Con- struc- tion	Ma- chinery and Equip- ment	Total	Con- struc- tion	Ma- chinery and Equip- ment	Total	Con- struc- tion	Ma- chinery and Equip- ment	Total
UTILITIES									
Electric power.....1963	459.1	153.7	612.8	51.7	33.2	84.9	510.8	186.9	697.7
.....1964	582.7	146.4	729.1	53.6	40.0	93.6	636.3	186.4	822.7
Gas distribution.....1963	70.4	13.7	84.1	7.0	2.2	9.2	77.4	15.9	93.3
.....1964	52.0	15.5	67.5	4.8	1.7	6.5	56.8	17.2	74.0
Railway transport.....1963	173.3	28.3	201.6	135.2	182.7	317.9	308.5	211.0	519.5
.....1964	193.9	74.5	268.4	144.7	204.6	349.3	338.6	279.1	617.7
Urban transit systems.....1963	30.6	14.0	44.6	4.0	18.5	22.5	34.6	32.5	67.1
.....1964	73.5	8.1	81.6	3.4	17.8	21.2	76.9	25.9	102.8
Water transport and services.....1963	15.6	53.8	69.4	5.8	16.3	22.1	21.4	70.1	91.5
.....1964	15.8	54.0	69.8	7.7	16.6	24.3	23.5	70.6	94.1
Motor transport.....1963	7.3	52.5	59.8	2.2	62.5	64.7	9.5	115.0	124.5
.....1964	5.9	57.6	63.5	3.2	59.6	62.8	9.1	117.2	126.3
Grain elevators.....1963	10.3	4.6	14.9	4.8	2.2	7.0	15.1	6.8	21.9
.....1964	8.9	3.3	12.2	5.5	2.2	7.7	14.4	5.5	19.9
Telephones and telegraph and cable systems.....1963	148.3	272.0	420.3	42.3	122.4	164.7	190.6	394.4	585.0
.....1964	148.8	251.0	399.8	43.4	122.7	166.1	192.2	373.7	565.9
Broadcasting.....1963	5.3	9.9	15.2	0.7	3.4	4.1	6.0	13.3	19.3
.....1964	4.7	13.5	18.2	0.6	3.2	3.8	5.3	16.7	22.0
Water systems.....1963	59.8	2.6	62.4	20.3	1.7	22.0	80.1	4.3	84.4
.....1964	65.8	3.5	69.3	18.6	1.9	20.5	84.4	5.4	89.8
Other utilities.....1963	130.6	40.5	171.1	7.4	48.1	55.5	138.0	88.6	226.6
.....1964	203.1	49.2	252.3	6.5	46.4	52.9	209.6	95.6	305.2
Capital items charged to operating expenses.....1963	—	14.8	14.8	—	—	—	—	14.8	14.8
.....1964	—	45.5	45.5	—	—	—	—	45.5	45.5
Totals, Utilities.....1963	1,110.6	660.4	1,771.0	281.4	493.2	774.6	1,392.0	1,153.6	2,545.6
.....1964	1,355.1	722.1	2,077.2	292.0	516.7	808.7	1,647.1	1,238.8	2,885.9
TRADE									
Wholesale.....1963	28.0	39.1	67.1	7.9	10.2	18.1	35.9	49.3	85.2
.....1964	27.6	46.7	74.3	7.9	11.1	19.0	35.5	57.8	93.3
Chain stores.....1963	22.9	38.0	60.9	5.2	7.8	13.0	28.1	45.8	73.9
.....1964	21.6	41.4	63.0	5.5	6.9	12.4	27.1	48.3	75.4
Independent stores.....1963	35.9	60.8	96.7	11.4	13.9	25.3	47.3	74.7	122.0
.....1964	34.2	64.7	98.9	12.1	12.9	25.0	46.3	77.6	123.9
Department stores.....1963	15.9	15.3	31.2	5.0	2.9	7.9	20.9	18.2	39.1
.....1964	16.6	16.1	32.7	4.6	2.9	7.5	21.2	19.0	40.2
Automotive trade.....1963	33.2	30.0	63.2	11.0	13.4	24.4	44.2	43.4	87.6
.....1964	30.4	32.6	63.0	10.6	11.7	22.3	41.0	44.3	85.3
Capital items charged to operating expenses.....1963	—	18.5	18.5	—	—	—	—	18.5	18.5
.....1964	—	19.8	19.8	—	—	—	—	19.8	19.8
Totals, Trade.....1963	135.9	201.7	337.6	40.5	48.2	88.7	176.4	249.9	426.3
.....1964	130.4	221.3	351.7	40.7	45.5	86.2	171.1	266.8	437.9

3.—Capital and Repair Expenditures for Certain Economic Sectors, 1963 and 1964—concluded

Type of Enterprise and Year	Capital			Repair			Capital and Repair		
	Con- struc- tion	Ma- chinery and Equip- ment	Total	Con- struc- tion	Ma- chinery and Equip- ment	Total	Con- struc- tion	Ma- chinery and Equip- ment	Total
INSTITUTIONS									
Churches.....1963	46.8	3.5	50.3	7.0	0.6	7.6	53.8	4.1	57.9
.....1964	47.5	3.3	50.8	6.7	0.9	7.6	54.2	4.2	58.4
Universities.....1963	117.8	20.2	138.0	6.5	0.9	7.4	124.3	21.1	145.4
.....1964	144.3	20.2	164.5	6.8	0.6	7.4	151.1	20.8	171.9
Schools.....1963	425.1	51.4	476.5	24.8	6.5	31.3	449.9	57.9	507.8
.....1964	288.5	49.5	338.0	24.7	8.7	33.4	313.2	58.2	371.4
Hospitals.....1963	148.8	39.7	188.5	20.6	6.6	27.2	169.4	46.3	215.7
.....1964	150.2	38.6	188.8	19.4	7.4	26.8	169.6	46.0	215.6
Other institutional services ..1963	18.4	1.5	19.9	1.5	0.3	1.8	19.9	1.8	21.7
.....1964	21.4	2.7	24.1	1.6	0.3	1.9	23.0	3.0	26.0
Totals, Institutions.....1963	756.9	116.3	873.2	60.4	14.9	75.3	817.3	131.2	948.5
.....1964	651.9	114.3	766.2	59.2	17.9	77.1	711.1	132.2	843.3
FINANCE									
Banks.....1963	24.2	14.1	38.3	4.7	2.5	7.2	28.9	16.6	45.5
.....1964	32.0	13.5	45.5	6.1	1.8	7.9	38.1	15.3	53.4
Insurance, trust and loan companies.....1963	15.5	8.7	24.2	3.0	0.8	3.8	18.5	9.5	28.0
.....1964	15.9	9.0	24.9	2.4	0.9	3.3	18.3	9.9	28.2
Other financial.....1963	190.9	19.1	210.0	9.4	1.9	11.3	200.3	21.0	221.3
.....1964	231.9	25.8	257.7	11.5	2.3	13.8	243.4	28.1	271.5
Totals, Finance.....1963	230.6	41.9	272.5	17.1	5.2	22.3	247.7	47.1	294.8
.....1964	279.8	48.3	328.1	20.0	5.0	25.0	299.8	53.3	353.1
COMMERCIAL SERVICES									
Laundries and dry-cleaners ..1963	1.8	8.0	9.8	1.2	3.5	4.7	3.0	11.5	14.5
.....1964	1.8	6.7	8.5	1.1	3.6	4.7	2.9	10.3	13.2
Theatres.....1963	2.3	2.1	4.4	0.6	0.5	1.1	2.9	2.6	5.5
.....1964	1.5	1.3	2.8	1.8	0.5	2.3	3.3	1.8	5.1
Hotels.....1963	35.3	15.8	51.1	10.3	6.2	16.5	45.6	22.0	67.6
.....1964	40.2	11.0	51.2	10.5	6.7	17.2	50.7	17.7	68.4
Other commercial services...1963	62.0	180.0	242.0	3.2	47.9	51.1	65.2	227.9	293.1
.....1964	59.6	194.8	254.4	3.0	49.6	52.6	62.6	244.4	307.0
Totals, Commercial Services.....1963	101.4	205.9	307.3	15.3	58.1	73.4	116.7	264.0	380.7
.....1964	103.1	213.8	316.9	16.4	60.4	76.8	119.5	274.2	393.7

A summary of the capital expenditures in each province for the years 1963 and 1964 is given in Table 4. Such expenditures represent gross additions to the capital stocks of the province and are a reflection of economic activity in the area, although the actual production of these assets may generate major employment and income-giving effects in

other regions. For example, the spending of millions of dollars on oil refineries and pipelines in Western Canada means activity in the steel industries of Ontario as well as construction activity in the western provinces.

4.—Capital and Repair Expenditures, by Province, 1963 and 1964

NOTE.—Actual expenditures 1963; preliminary actual 1964.

(Millions of dollars)

Province and Year	Capital			Repair			Capital and Repair		
	Con- struc- tion	Ma- chinery and Equip- ment	Total	Con- struc- tion	Ma- chinery and Equip- ment	Total	Con- struc- tion	Ma- chinery and Equip- ment	Total
Newfoundland.....1963	159	77	236	26	27	53	185	104	289
.....1964	166	69	235	29	34	63	195	103	298
Prince Edward Island.....1963	30	13	43	9	5	14	39	18	57
.....1964	26	15	41	8	5	13	34	20	54
Nova Scotia.....1963	156	78	234	57	42	99	213	120	333
.....1964	162	104	266	56	45	101	218	149	367
New Brunswick.....1963	118	71	189	40	41	81	158	112	270
.....1964	156	101	257	42	44	86	198	145	343
Quebec.....1963	1,581	720	2,301	383	443	826	1,964	1,163	3,127
.....1964	1,941	806	2,747	396	455	851	2,337	1,261	3,598
Ontario.....1963	2,088	1,194	3,282	532	684	1,216	2,620	1,878	4,498
.....1964	2,227	1,447	3,674	589	743	1,332	2,816	2,190	5,006
Manitoba.....1963	321	170	491	82	102	184	403	272	675
.....1964	354	193	547	88	102	190	442	295	737
Saskatchewan.....1963	353	250	603	92	95	187	445	345	790
.....1964	375	280	655	92	99	191	467	379	846
Alberta.....1963	690	305	995	172	143	315	862	448	1,310
.....1964	759	322	1,081	159	146	305	918	468	1,386
British Columbia.....1963	661	358	1,019	166	215	381	827	573	1,400
.....1964	845	479	1,324	180	231	411	1,025	710	1,735
Totals.....1963	6,157	3,236	9,393	1,559	1,797	3,356	7,716	5,033	12,749
.....1964	7,011	3,816	10,827	1,639	1,904	3,543	8,650	5,720	14,370

Section 2.—Construction Statistics

Subsection 1.—Value of Construction Work Performed

Statistics of the construction industry are based largely on information received at the same time and from the same sources as the data on capital expenditures that appear in Section 1.* The data represent the estimated total value of all new and repair construction performed by contractors; by labour forces of utility, manufacturing, mining and logging firms; and by government departments, home-owner builders and other persons or firms not primarily engaged in the construction industry.

Table 5 shows the value of new and repair construction work performed during the ten-year period 1955-64, and Table 6 shows that contractors account for from 75 p.c. to 80 p.c. of the work performed each year.

* An explanation of sources and methods is given in DBS annual report *Construction in Canada* (Catalogue No. 64-201).

5.—Value of New and Repair Construction Work Performed, 1955-64

NOTE.—Actual expenditures 1955-63; preliminary actual 1964.

Year	New	Repair	Total	Total Construction as Percentage of Gross National Product
	\$'000,000	\$'000,000	\$'000,000	p.c.
1955.....	4,167	1,141	5,308	19.6
1956.....	5,272	1,182	6,454	21.1
1957.....	5,785	1,238	7,023	22.0
1958.....	5,831	1,261	7,092	21.6
1959.....	5,710	1,367	7,077	20.3
1960.....	5,454	1,432	6,886	19.0
1961.....	5,518	1,456	6,974	18.7
1962.....	5,787	1,509	7,296	18.1
1963.....	6,157	1,559	7,716	17.9
1964.....	7,012	1,641	8,653	18.4

6.—Value of Construction Work Performed, by Contractors and Others, 1961-64

NOTE.—Actual expenditures 1961-63; preliminary actual 1964.

(Millions of dollars)

Item	1961	1962	1963	1964
Contract Construction.....	5,347	5,710	6,034	6,963
New.....	4,621	4,900	5,213	6,061
Repair.....	726	810	821	902
Other Construction¹.....	1,627	1,586	1,682	1,690
New.....	897	887	944	951
Repair.....	730	699	738	739
Totals, Construction.....	6,974	7,296	7,716	8,653
New.....	5,518	5,787	6,157	7,012
Repair.....	1,456	1,509	1,559	1,641

¹ Work done by the labour forces of utilities, manufacturing, mining and logging firms and by government departments, home-owner builders and other persons or firms not primarily engaged in the construction industry.

Table 7 gives estimates of total expenditures in Canada on each type of construction for which information is available.

7.—Value of Construction Work Performed, by Type of Structure, 1963 and 1964

NOTE.—Actual expenditures 1963; preliminary actual 1964.

Type of Structure	1963			1964		
	New	Repair	Total	New	Repair	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Building Construction						
Residential.....	1,713,400	544,000	2,257,400	2,027,500	577,000	2,604,500
Industrial.....	399,104	136,506	535,610	525,698	136,843	662,541
Factories, plants, workshops, food canneries.....	302,667	107,155	409,822	412,046	106,030	518,076
Mine and mine mill buildings.....	76,127	10,509	86,636	94,970	10,360	105,330
Railway stations, offices, roadway buildings.....	14,435	12,455	26,890	11,095	13,619	24,714
Railway shops, engine houses, water and fuel stations.....	5,875	6,387	12,262	7,587	6,834	14,421

7.—Value of Construction Work Performed, by Type of Structure, 1963 and 1964—continued

Type of Structure	1963			1964		
	New	Repair	Total	New	Repair	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Building Construction —concluded						
Commercial	616,927	119,995	736,922	660,752	132,026	792,778
Warehouses, storehouses, refrigerated storage, etc.....	56,981	13,672	70,653	64,921	15,789	80,710
Grain elevators.....	15,303	5,897	21,200	10,646	6,649	17,295
Hotels, clubs, restaurants, cafeterias, tourist cabins.....	54,106	12,925	67,031	56,879	12,808	69,687
Office buildings.....	254,399	41,884	296,283	299,692	48,944	348,636
Stores, retail and wholesale.....	145,314	26,372	171,686	147,549	27,478	175,027
Garages and service stations.....	34,632	11,321	45,953	34,412	11,467	45,879
Theatres, arenas, amusement and recreational buildings.....	54,280	6,827	61,107	44,804	7,814	52,618
Laundries and dry-cleaning establishments.....	1,912	1,097	3,009	1,849	1,077	2,926
Institutional	779,621	77,010	856,631	689,578	67,406	756,984
Schools and other educational buildings.....	543,988	33,596	577,584	437,322	33,568	470,890
Churches and other religious buildings.....	46,912	7,061	53,973	47,516	6,985	54,501
Hospitals, sanatoria, clinics, first-aid stations, etc.....	157,439	23,307	180,746	161,300	21,826	183,126
Other.....	31,282	13,046	44,328	43,440	5,027	48,467
Other Building	225,451	80,294	305,745	227,940	82,227	310,167
Farm buildings (excluding dwellings).....	127,017	48,594	175,611	132,272	50,788	183,060
Broadcasting, radio and television, relay and booster stations, telephone exchanges.....	42,532	5,809	48,341	32,900	4,168	37,068
Aeroplane hangars.....	2,620	3,004	5,624	2,696	3,053	5,749
Passenger terminals, bus, boat or air.....	21,685	414	22,099	20,762	907	21,669
Armouries, barracks, drill halls, etc.....	3,380	14,149	17,529	3,802	14,009	17,811
Bunkhouses, dormitories, camp cookeries, bush depots and camps.....	9,551	3,955	13,506	10,006	4,154	14,160
Miscellaneous.....	18,666	4,369	23,035	25,502	5,148	30,650
Totals, Building Construction..	3,734,503	957,805	4,692,308	4,131,468	995,502	5,126,970
Engineering Construction						
Marine	44,613	15,956	60,569	73,047	16,620	89,667
Docks, wharves, piers, breakwaters.....	29,647	7,870	37,517	46,465	7,653	54,118
Retaining walls, embankments, riprapping.....	5,050	1,104	6,154	17,907	303	18,210
Canals and waterways.....	2,345	719	3,064	3,085	1,375	4,460
Dredging and pile driving.....	2,941	4,765	7,706	2,703	4,915	7,618
Dyke construction.....	1,909	160	2,069	13	35	48
Logging booms.....	306	412	718	331	420	751
Other.....	2,415	926	3,341	2,543	1,919	4,462
Road, Highway and Aerodrome ...	647,048	199,032	846,080	820,928	222,634	1,043,562
Hard surfaced or paved streets, highways, parking lots, etc.....	383,686	109,394	493,080	619,923	141,308	761,231
Gravel or stone streets, highways, roads, parking lots, etc.....	177,347	59,091	236,438	105,931	61,792	167,723
Dirt, clay or other streets, roads, parking lots, etc.....	25,634	9,576	35,210	24,170	10,039	34,209
Grading, scraping, oiling, filling...	22,406	13,147	35,553	33,611	2,442	36,053
Sidewalks, paths.....	20,588	5,593	26,181	20,190	4,937	25,127
Aerodromes, landing fields, runways, tarmac.....	17,387	2,231	19,618	17,103	2,116	19,219
Waterworks and Sewage Systems ...	218,665	47,665	266,330	248,134	46,441	294,575
Tile drains, drainage ditches, storm sewers.....	18,204	7,020	25,224	21,067	6,448	27,515

7.—Value of Construction Work Performed, by Type of Structure, 1963 and 1964—concluded

Type of Structure	1963			1964		
	New	Repair	Total	New	Repair	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Engineering Construction —concluded						
Waterworks and Sewage Systems —concluded						
Water mains, hydrants and services.....	65,712	25,399	91,111	73,814	23,953	97,767
Sewage systems and connections..	119,963	12,377	132,340	132,669	12,989	145,658
Pumping stations, water.....	8,547	1,903	10,450	16,092	1,567	17,659
Water storage tanks.....	6,239	966	7,205	4,492	1,484	5,976
Dams and Irrigation	75,996	8,997	84,993	121,951	9,317	131,268
Dams and reservoirs.....	58,340	2,340	60,680	98,281	2,270	100,551
Irrigation and land reclamation projects.....	17,656	6,657	24,313	23,670	7,047	30,717
Electric Power Construction	431,071	61,440	492,511	509,989	62,763	572,752
Electric power generating plants, including water conveying and controlling structures.....	206,750	14,026	220,776	187,944	13,146	201,090
Electric transformer stations.....	35,568	6,638	42,206	87,923	5,525	93,448
Power transmission and distribution lines, trolley wires.....	174,576	33,189	207,765	220,371	37,352	257,723
Street lighting.....	14,177	7,587	21,764	13,751	6,740	20,491
Railway, Telephone and Telegraph	253,722	152,443	406,165	271,877	159,366	431,243
Railway tracks and roadbed.....	127,473	103,666	231,139	139,903	107,592	247,495
Signals and interlockers.....	10,194	7,886	18,080	9,740	8,399	18,139
Telegraph and telephone lines, underground and marine cables..	116,055	40,891	156,946	122,234	43,375	165,609
Gas and Oil Facilities	442,609	57,353	499,962	490,284	63,192	553,476
Gas mains and services.....	63,293	6,136	69,429	48,797	4,232	53,029
Pumping stations, oil.....	2,912	1,241	4,153	3,249	1,518	4,767
Pumping stations, gas.....	30,032	799	30,831	32,737	513	33,250
Oil storage tanks.....	13,559	2,678	16,237	14,811	2,238	17,049
Gas storage tanks.....	1,377	36	1,413	1,693	69	1,762
Oil pipelines.....	22,997	2,365	25,362	20,658	1,881	22,539
Gas pipelines.....	52,961	744	53,705	99,629	939	100,568
Oil wells.....	152,591	9,816	162,407	174,004	15,313	189,317
Gas wells.....	25,842	939	26,781	31,046	967	32,013
Oil refinery—processing units.....	36,179	29,626	65,805	19,113	31,213	50,326
Natural gas cleaning plants.....	40,866	2,973	43,839	44,547	4,309	48,856
Other Engineering	308,501	58,592	367,093	344,418	64,753	409,171
Bridges, trestles, culverts, overpasses, viaducts.....	178,508	23,834	202,342	144,048	29,998	174,046
Tunnels and subways.....	31,744	109	31,853	70,501	346	70,847
Incinerators.....	293	100	393	39	20	59
Park systems, landscaping, sodding, etc.....	8,461	7,203	15,664	4,357	3,381	7,738
Swimming pools, tennis courts, outdoor recreation facilities.....	2,725	2,152	4,877	5,235	784	6,019
Mine shafts and other below surface workings.....	33,163	3,667	36,830	38,520	3,115	41,635
Fences, snowsheds, signs, guardrails.....	25,025	13,536	38,561	24,921	11,105	36,026
Miscellaneous.....	28,582	7,991	36,573	56,797	16,004	72,801
Totals, Engineering Construction	2,422,225	601,478	3,023,703	2,880,628	645,086	3,525,714
Totals, All Construction	6,156,728	1,559,283	7,716,011	7,012,096	1,640,588	8,652,684

Principal statistics of the construction industry are shown by province and for contractors, utilities, governments and others in Table 8. The statistics given for Canada as a whole may be considered as relatively accurate but those for individual provinces and

by class of builder are approximations only. All estimates given for cost of materials used are based on ratios of this item to total value of work performed, derived from annual surveys of construction work and applied to the total value-of-work figures. Estimates of labour content are similarly based but, in addition, are adjusted to include working owners and partners and their withdrawals. Although the ratios were calculated in some detail by type of industry, still further refinements are required. There are also some difficulties in obtaining the precise location of projects undertaken or to be undertaken by large companies operating in a number of provinces. However, if used with these qualifications in mind, the table provides useful estimates.

8.—Labour Content, Cost of Materials and Value of Work Performed in Construction, by Province and by Employer, 1963 and 1964 with Totals for 1960-64

NOTE.—Actual expenditures 1960-63; preliminary actual 1964. Comparable figures from 1953 are given in the corresponding table of previous Year Books beginning with the 1957-58 edition.

Province or Employer and Year	Labour Content		Cost of Materials Used	Value of Work Performed
	Number	Value		
		\$'000	\$'000	\$'000
Province				
Newfoundland.....1963	12,318	56,189	86,780	185,215
.....1964	12,447	57,228	88,995	195,350
Prince Edward Island.....1963	3,418	11,812	17,872	38,326
.....1964	3,051	10,616	15,733	34,433
Nova Scotia.....1963	18,027	70,387	104,013	213,108
.....1964	17,967	72,024	107,036	219,282
New Brunswick.....1963	14,153	51,909	80,906	158,523
.....1964	16,837	63,276	99,528	197,670
Quebec.....1963	136,121	638,013	1,006,379	1,963,920
.....1964	154,346	744,577	1,182,415	2,337,245
Ontario.....1963	174,273	897,700	1,262,568	2,620,182
.....1964	182,754	959,498	1,362,375	2,816,060
Manitoba.....1963	28,511	136,672	187,082	402,922
.....1964	30,445	148,681	206,950	441,687
Saskatchewan.....1963	30,997	144,766	213,237	444,621
.....1964	31,727	151,511	223,911	467,005
Alberta.....1963	53,730	270,534	391,461	861,795
.....1964	55,403	286,492	413,425	918,707
British Columbia.....1963	52,361	282,895	386,196	827,399
.....1964	62,116	346,096	472,049	1,025,245
Totals.....1960	541,191	2,336,891	3,251,622	6,886,255
.....1961	530,854	2,349,229	3,273,513	6,974,379
.....1962	528,921	2,475,670	3,507,738	7,296,039
.....1963	523,909	2,560,877	3,736,494	7,716,011
.....1964	567,093	2,839,999	4,172,417	8,652,684
Employer				
Contractors.....1963	377,040	1,876,434	2,967,999	6,033,670
.....1964	422,097	2,152,770	3,399,663	6,963,443
Utilities.....1963	63,363	325,283	433,769	805,581
.....1964	61,947	324,549	432,381	803,308
Governments.....1963	51,691	214,290	153,309	506,306
.....1964	50,643	212,898	151,852	501,472
Others.....1963	31,815	144,870	181,417	370,454
.....1964	32,406	149,782	188,521	384,461

Subsection 2.—Contracts Awarded and Building Permits Issued

In this Subsection, statistics are given of work actually in sight either as contracts awarded or as building permits. These figures are related to those of work performed during the year only so far as the work thus provided for is completed and duly reported in the capital expenditure surveys. Further, values of contracts awarded, and especially of building permits, are estimates (more often under-estimates) of work to be done.

9.—Value of Construction Contracts Awarded, 1941-64

(Source: *Southam Building Guide*)

NOTE.—Figures for the years 1926-40 are given in the corresponding table of the 1962 Year Book, p. 682.

Year	Value of Construction Contracts	Year	Value of Construction Contracts	Year	Value of Construction Contracts
	\$		\$		\$
1941.....	393,961,300	1949 ¹	1,143,547,300	1957.....	2,894,168,100
1942.....	281,584,100	1950.....	1,525,764,700	1958.....	3,593,709,200
1943.....	206,103,900	1951.....	2,295,499,200	1959.....	3,219,073,300
1944.....	291,961,800	1952.....	1,512,177,600	1960.....	3,053,749,500
1945.....	409,032,700	1953.....	2,017,060,700	1961.....	3,220,937,300
1946.....	663,355,100	1954.....	2,154,959,200	1962.....	3,351,717,500
1947.....	718,137,100	1955.....	3,183,592,000	1963.....	3,685,634,300
1948.....	954,082,400	1956.....	3,426,905,500	1964.....	4,413,077,400

¹ Newfoundland included from Apr. 1, 1949.

10.—Value of Construction Contracts Awarded, by Province and Type of Construction, 1963 and 1964

(Source: *Southam Building Guide*)

Province and Type of Construction	1963	1964	Type of Construction	1963	1964
	\$'000	\$'000		\$'000	\$'000
Newfoundland.....	57,677	73,575	Business.....	1,274,095	1,452,488
Prince Edward Island.....	13,908	4,721	Churches.....	49,090	37,785
Nova Scotia.....	86,086	135,604	Public garages.....	11,188	10,798
New Brunswick.....	88,749	73,087	Hospitals.....	107,047	149,911
Quebec.....	1,007,727	1,158,353	Office and clubs.....	120,663	123,552
Ontario.....	1,468,941	1,801,229	Public buildings.....	200,117	306,025
Manitoba.....	173,621	188,553	Schools.....	125,582	164,681
Saskatchewan.....	134,401	207,490	Theatres.....	409,547	416,303
Alberta.....	265,594	369,455	Warehouses.....	145,089	126,737
British Columbia.....	388,930	401,010		2,656	15,798
				103,116	100,898
Totals.....	3,685,634	4,413,077	Industrial.....	280,216	506,505
			Engineering.....	895,560	966,799
Residential.....	1,235,464	1,457,285	Bridges.....	108,369	111,159
Apartments.....	435,794	667,723	Marine.....	23,101	53,552
Residences.....	799,670	819,562	Sewerage and waterworks.....	157,929	204,128
			Roads and streets.....	301,129	264,331
			Power and communications.....	176,180	123,552
			Miscellaneous.....	130,152	210,067

Building Permits.—The estimated value of proposed construction is indicated by the value of building permits issued. Figures of building permits issued are collected for more than 1,400 municipalities across the country and are available for the individual municipalities, for metropolitan areas, for provinces and for economic areas in Quebec, Ontario and Manitoba.

The total value of permits issued for construction work exceeded \$3,200,000,000 for 1964, the highest figure on record and an increase of 15.7 p.c. over 1963. Residential construction was 10.4 p.c. higher, with new construction up 11.2 p.c. and repairs down

4.2 p.c. Non-residential construction increased 21.4 p.c. over 1963, with increases of 35.5 p.c. in industrial, 29.9 p.c. in commercial, and 8.8 p.c. in institutional and government construction. All provinces except Newfoundland recorded gains in 1964, the largest percentage increase being reported by British Columbia. Table 11 shows the value of building permits issued in each of 50 municipalities for 1963 and 1964.

11.—Estimated Value of Proposed Construction as Indicated by Building Permits Issued in 50 Municipalities, 1963 and 1964

NOTE.—Comparable figures for 1956-60 are given in the 1962 Year Book, p. 684, for 1961 in the 1963-64 edition, p. 692, and for 1962 in the 1965 edition, p. 698.

Province and Municipality	1963	1964	Province and Municipality	1963	1964
	\$'000	\$'000		\$'000	\$'000
Newfoundland—			Ontario—concluded		
St. John's.....	17,765	15,834	Port Arthur.....	9,146	6,976
Prince Edward Island—			Scarborough Township.....	52,411	59,523
Charlottetown.....	7,320	7,075	Toronto.....	121,774	167,670
Nova Scotia—			Toronto Township.....	31,329	46,030
Halifax.....	14,574	14,856	Windsor.....	17,199	17,839
New Brunswick—			York North Township.....	131,720	154,542
Fredericton.....	3,632	15,310	York Township.....	17,153	7,642
Moncton.....	10,381	7,164	Manitoba—		
Saint John.....	6,753	10,332	Fort Garry.....		
Quebec—			St. Boniface.....	100,494 ¹	97,158 ¹
LaSalle.....	11,066	11,594	St. James.....		
Montreal.....	185,023	243,082	Winnipeg.....		
Quebec.....	17,551	15,690	Saskatchewan—		
St. Laurent.....	18,205	17,853	Moose Jaw.....	3,392	4,195
St. Eoy.....	21,891	19,509	Prince Albert.....	806	2,828
Sept Îles.....	1,793	4,304	Regina.....	35,918	36,226
Sherbrooke.....	20,727	16,061	Saskatoon.....	24,163	35,465
Trois-Rivières.....	10,003	5,869	Alberta—		
Ontario—			Calgary.....	90,977	95,559
Brampton.....	21,427	16,923	Edmonton.....	75,774	103,111
Burlington.....	17,084	21,811	Jasper Place.....	12,724	669
Etobicoke Township.....	88,669	80,627	Lethbridge.....	6,888	5,600
Hamilton.....	50,951	54,861	Medicine Hat.....	4,533	4,247
Kitchener.....	23,451	32,557	Red Deer.....	11,029	7,979
London.....	48,904	50,237	British Columbia—		
London Township.....	660	574	Burnaby District.....	17,114	32,462
Nepean Township.....	18,854	22,322	Richmond Township.....	8,966	14,906
Oshawa.....	21,296	28,808	Surrey District.....	9,100	11,269
Ottawa.....	105,218	106,280	Vancouver.....	55,828	78,791
			Victoria.....	10,088	16,997

¹ Metropolitan Corporation of Greater Winnipeg.

Table 12 shows the value of building permits issued in 17 metropolitan areas across Canada. In 1964 the permits issued in these areas made up 67.4 p.c. of the total for Canada.

12.—Estimated Value of Building Permits Issued in Metropolitan Areas, 1963 and 1964

Metropolitan Area	1963	1964	Metropolitan Area	1963	1964
	\$'000	\$'000		\$'000	\$'000
St. John's ¹	17,765	15,834	Sudbury.....	15,969	8,131
Halifax.....	30,127	26,442	London.....	52,087	52,163
Saint John.....	15,413	18,717	Windsor.....	30,682	44,081
Quebec.....	71,182	64,156	Winnipeg.....	100,494	97,158
Montreal.....	470,301	540,017	Calgary.....	93,945	95,969
Ottawa-Hull.....	141,305	147,656	Edmonton.....	98,871	114,167
Toronto.....	499,738	603,335	Vancouver.....	138,794	187,787
Hamilton.....	76,991	91,160	Victoria.....	31,651	36,511
Kitchener.....	52,489	60,785			

¹ Although this is a metropolitan area, only St. John's proper is included in the building permits survey.

Table 13 shows the value of building permits issued, by province, for 1963 and 1964.

13.—Value of Building Permits Issued, by Province, 1963 and 1964 with Totals for 1960-64

NOTE.—Comparable figures from 1952 are given in the corresponding table of previous Year Books beginning with the 1957-58 edition.

Province and Year	Residential Construction			Non-residential Construction			Total
	New	Repair	Total	Industrial	Com- mercial	Institu- tional and Govern- ment	
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....1963	8,845	892	9,737	441	5,097	6,645	21,920
.....1964	8,102	900	9,002	2,186	4,919	5,663	21,770
Prince Edward Island.....1963	1,083	102	1,185	240	958	5,749	8,132
.....1964	1,631	102	1,733	185	1,120	5,366	8,404
Nova Scotia.....1963	25,898	2,427	28,325	16,589	8,729	12,111	65,754
.....1964	25,967	2,218	28,185	23,398	11,701	16,026	79,310
New Brunswick.....1963	13,250	1,512	14,762	6,187	6,403	9,015	36,367
.....1964	17,946	1,863	19,809	5,310	12,913	15,853	53,885
Quebec.....1963	372,617	17,892	390,509	50,141	115,769	165,924	722,343
.....1964	381,535	17,993	399,528	76,334	156,540	156,021	788,423
Ontario.....1963	580,092	28,344	608,436	151,910	182,734	264,225	1,207,305
.....1964	680,420	26,574	706,994	182,516	240,320	304,253	1,434,083
Manitoba.....1963	54,121	3,062	57,183	15,025	24,306	23,627	120,141
.....1964	52,367	2,697	55,064	19,218	21,664	25,442	121,388
Saskatchewan.....1963	44,391	2,795	47,186	4,563	19,043	21,556	92,348
.....1964	58,575	2,876	61,451	7,453	20,348	23,092	112,344
Alberta.....1963	130,691	4,371	135,062	21,220	48,808	70,185	275,275
.....1964	123,578	3,928	127,506	29,611	66,337	65,359	288,813
British Columbia.....1963	158,935	10,846	169,781	14,732	48,275	40,853	273,641
.....1964	195,465	10,087	205,552	34,631	61,674	57,344	359,201
Totals.....1960	883,823	60,676	944,499	184,221	432,749	463,358	2,024,827
.....1961	1,107,518	68,472	1,175,990	198,110	437,852	432,301	2,244,253
.....1962	1,144,464	64,818	1,209,182	218,138	469,356	619,902	2,516,578
.....1963	1,389,923	72,243	1,462,166	281,048	460,122	619,890	2,823,226
.....1964	1,545,656	69,238	1,614,824	390,842	597,536	674,419	3,267,621

The indexes given in Table 14 show as far as possible the fluctuations in building costs and their effect upon construction work and employment. The relative proportions of material and wage costs in general building are difficult to determine since such proportions vary with the type of building and the centres studied.

14.—Index Numbers of Prices of Building Materials, and Wage Rates and Employment in Construction Industries, 1955-64

(Av. 1949=100)

Year	Prices of Building Materials		Wage Rates in Construction Industries ¹	Employment in Building Construction ²
	Residential	Non- residential		
1955.....	124.3	123.4	146.6	120.2
1956.....	128.5	128.0	152.4	145.5
1957.....	128.4	130.0	162.9	147.7
1958.....	127.3	129.8	173.6	130.1
1959.....	130.0	131.7	183.4	136.5
1960.....	129.2	132.3	195.5	128.6
1961.....	128.4	131.1	199.7	122.5
1962.....	129.6	131.9	209.7	127.7
1963.....	134.4	135.5	217.5	129.1 ^a
1964.....	143.5	140.6	228.0	138.2

¹ Compiled by the Department of Labour.

² As reported by employers with 15 or more employees.

Section 3.—Housing*

Subsection 1.—Government Aid to House-Building

Federal Assistance.—The role of the Federal Government in housing has expanded progressively since the introduction of the first continuing statute in 1935. Although the Government originally entered the housing field in 1918, when it made money available to the provinces for re-lending to municipalities for housing purposes, the first general piece of federal housing legislation was the Dominion Housing Act passed in 1935. This was followed by the National Housing Acts of 1938 and 1944, culminating in 1954 with the present National Housing Act, defined as “an Act to promote the construction of new houses, the repair and modernization of existing houses and the improvement of housing and living conditions”. Central Mortgage and Housing Corporation (CMHC), a Crown agency incorporated by Act of Parliament in 1945, administers the National Housing Act and co-ordinates the activities of the Federal Government in housing. The Corporation has the authority and responsibility for a variety of functions affecting housing in its long-term outlook as well as in its immediate requirements. It is empowered to act as an insurer of mortgage loans, as a lender or investor of public funds, as a guarantor and as an owner of property and other assets. It also acts as a research agency in fields associated with housing and assists provinces and municipalities in many aspects of urban growth.

In general, the Government, through the successive Housing Acts, has attempted to stimulate and supplement the market for housing rather than assume direct responsibilities that rightfully belong to other levels of government or that could be borne more effectively by private enterprise. In each case the aim has been to increase the flow of mortgage money and to encourage lenders to make loans on more favourable terms to prospective home owners.

The volume of house-building in Canada since 1935 has been spectacular. Close to half of the country's present stock of approximately 5,000,000 houses have been built since the first covering legislation was enacted; about one third of these were financed in one way or another under the Housing Acts.

Under the terms of the National Housing Act, 1954 and its subsequent amendments, the Federal Government is active in many ways.

Loan Insurance.—Mortgage loans made by approved lenders may be insured for new home-ownership and rental housing and for existing dwellings in approved urban renewal areas. They are normally available from approved lenders (chartered banks and life insurance, trust and loan companies) to individual home-owner applicants, to builders constructing houses for sale or for rent, to rental investors and to special groups such as co-operative housing associations and farmers. Upon application, the borrower pays CMHC a fee of \$35 per unit to help defray expenses incurred in the examination of plans and specifications, in the determination of lending values and in compliance inspections during construction. An approved lender requires evidence that a home owner or home purchaser is providing 5 p.c. of the value of the house from his own resources. For the home owner this equity may be in the form of cash or a combination of cash, land and labour; for the home purchaser it may be in cash or labour. The regulations require that

* Prepared in the Information Division, Central Mortgage and Housing Corporation Ottawa.

gross debt service—the ratio of repayments of principal and interest plus municipal taxes to the income of the borrower—should not exceed 27 p.c., although instances involving higher ratios may be considered on their merits. The borrower pays an insurance fee which is added to the amount of the loan and is repaid over the term of the mortgage; the fee ranges from 1½ p.c. to 2½ p.c. of the loan, according to type of unit and time of mortgage advances.

For home-ownership housing, loans may be up to 95 p.c. of the first \$13,000 of lending value and 70 p.c. of the balance but may not exceed a maximum of \$18,000. Loans for rental houses may be up to 85 p.c. of the lending value, subject to the same maximum loan amount. The maximum loan available for apartment multiple-family dwellings is \$12,000 per family housing unit. The period for loan repayment is usually 25 years but may be extended to 35 years if the lender agrees. Repayments are made in equal monthly instalments which include payment of interest and loan principal. The total monthly payment includes one twelfth of the estimated municipal taxes. The interest rate is prescribed by the Governor in Council; on June 13, 1963, it was reduced from 6½ p.c. to 6¼ p.c.

Direct Loans.—CMHC may make direct loans for both home-ownership and rental housing where, in the opinion of the Corporation, loans are not available through approved lenders. Loans are made to any eligible home-owner applicant but direct loans to builders are subject to a requirement that the houses be pre-sold to satisfactory purchasers. Since 1963, loans not subject to pre-sale condition have been made available to support the Federal Government's winter-building incentive program by ensuring an adequate supply of mortgage funds. By the end of 1964, direct lending by the Corporation totalled approximately \$2,250,000,000 and in June 1965 the amount that may be advanced for this purpose out of the Consolidated Revenue Fund was increased from \$2,500,000,000 to \$3,250,000,000.

CMHC, with Government approval by Order in Council, may make loans to non-profit corporations and limited-dividend housing companies to assist in financing the construction of low-rental housing projects or in the purchase of existing buildings and their conversion into a low-rental housing project. In addition to self-contained units, developments undertaken by non-profit corporations may include hostel or dormitory accommodation for the elderly and low-income individuals. The dividends of a limited-dividend company are restricted by the terms of its charter to 5 p.c. or less of paid-up share capital. Loans may be up to a maximum of 90 p.c. of the lending value established by CMHC. The period for repayment may not exceed the useful life of the project and in any case may be for not more than 50 years. The interest rate is established by Order in Council. Plans and specifications for such projects must be approved by the Corporation as well as financing and operating arrangements.

Since December 1960, the National Housing Act has provided financial assistance for the elimination or prevention of water and soil pollution. CMHC is authorized to make a loan to a province, municipality or a municipal sewerage corporation for the construction or expansion of a central plant for the treatment and disposal of sewage wastes and the construction of one or more trunk collector sewers. The loan may not exceed two thirds of the cost of the project and the maximum repayment term is 50 years from date of completion. The interest rate is prescribed by the Governor in Council. The agreement covering the project contains a condition whereby 25 p.c. of the loan principal and 25 p.c. of the

accrued interest will be forgiven for projects completed to the satisfaction of CMHC on or before Mar. 31, 1967. Where construction is not completed before that date, 25 p.c. of the loan advanced or warrantable by construction progress at that date, plus 25 p.c. of the accrued interest on advances, may be forgiven.

Long-term loans to universities, colleges, co-operative associations and charitable corporations are authorized under the Act for the construction of university housing projects or the acquisition of existing buildings and their conversion into a university housing project. CMHC may lend up to 90 p.c. of the project cost, subject to maximum amounts as follows: houses, \$18,000; self-contained apartments, \$12,000 per unit; and hostels, \$7,000 per person accommodated. Term of the loan may not exceed 50 years. The interest rate is prescribed by the Governor in Council.

Guarantees.—CMHC is authorized to give a limited guarantee to banks or approved instalment credit agencies in return for an insurance fee paid by the borrower on loans made for additions, repairs and alterations to existing houses and apartments. A home improvement loan and the balance owing on any existing NHA home improvement loan on the property may not exceed \$4,000 for a one-family dwelling or \$4,000 for the first unit of a duplex, semi-detached or multiple-family dwelling, plus \$1,500 for each additional unit. Loans are repayable in monthly instalments, together with interest at the rate of 6 p.c., in not more than 10 years.

Public Housing.—Under the National Housing Act and complementary provincial legislation, the Federal Government and the government of a province may enter into a partnership agreement to build rental housing for families and individuals of low income or purchase and rehabilitate existing housing for this purpose. Projects may include hostel or dormitory accommodation in addition to self-contained units. The Federal Government pays up to 75 p.c. of the capital costs and the provincial government the remainder, although the latter may call upon the municipality concerned to bear a portion of the provincial share. Rents for units in federal-provincial projects are related to the tenant's family income and size of family and operating deficits are shared on the same contractual basis as the capital costs. The Federal Government and the government of a province may also enter into an agreement to provide for a land assembly project which involves the development of raw land for housing purposes. Such projects are financed in the same manner as federal-provincial housing projects.

As an alternative method of producing public housing, the CMHC is empowered to make long-term loans to a province, or to a municipality or public housing agency with the approval of the province, for the provision of housing accommodation. Projects may consist of new construction or existing buildings and include dormitory and hostel accommodation as well as self-contained family units. Loans may be up to 90 p.c. of the total cost as determined by CMHC and for a term as long as 50 years but not in excess of the useful life of the development. The maximum that may be borrowed for a house is \$18,000, for a fully serviced apartment \$12,000, and for hostels or dormitories \$7,000 for each person accommodated. The interest rate is set by the Governor in Council.

Federal grants may be made covering up to 50 p.c. of losses incurred in the operation of public housing projects, for a period of up to 50 years but not exceeding the useful life of

the project. Grants may be provided whether or not a public housing project is undertaken with a loan under the National Housing Act. Loans may be made to assist proponents of public housing projects to acquire land for future projects, the maximum loan being 90 p.c. of the cost of acquiring and servicing the property.

Urban Renewal.—Federal grants and loans are available under the Act to assist provinces and municipalities undertaking programs of urban renewal. CMHC, with Federal Government approval, may arrange with a municipality to undertake either a city-wide study or a study within a specific area for the purpose of identifying blighted areas, determining housing requirements and providing data upon which an orderly program of conservation, rehabilitation and redevelopment can be based. The federal contribution may be as much as 75 p.c. of the cost of a city-wide study and up to 50 p.c. of the cost of a limited area study. The legislation also authorizes federal contributions equal to one half of the costs of preparing an urban renewal scheme setting out proposals for urban renewal action, a similar cost-sharing arrangement for the implementation of a scheme, and loans up to two thirds of the provincial or municipal share of the cost of carrying out an urban renewal scheme. Loans may be for 15 years at an interest rate prescribed by the Governor in Council. To encourage the improvement and conservation of housing meeting minimum standards of construction, loans are available for the sale, purchase or refinancing of existing housing in urban renewal areas not designated for demolition.

CMHC Building.—The Corporation may construct and administer housing and certain other buildings on its own account and for other government departments and agencies. Its responsibilities include the provision of architectural and engineering designs, the calling of public tenders and the administration of construction contracts—including any necessary on-site surveying and engineering. On such contracts the Corporation carries out full architectural and engineering inspections.

Research.—CMHC is concerned with building technology in the formulation of standards for housing construction, in the use of suitable materials and in the development of new building techniques. The Corporation has no laboratory facilities but has direct experience of performance in the field and seeks the advice of specialists in various agencies and departments of the Federal Government in such matters. Research into the factors affecting housing is concerned with the measurement of the demand for new housing, the volume of new housing built and the supply of mortgage money for house construction. The Corporation also co-ordinates and publishes statistical information on housing. Funds provided under the National Housing Act support the activities of the Canadian Housing Design Council, the Community Planning Association of Canada and the Canadian Council on Urban and Regional Research.

Other Federal Legislation.—The Farm Credit Act, 1959 provides for federal long-term loan assistance for housing as well as for other farm purposes (see pp. 464-465); the Veterans' Land Act, 1942 provides a form of loan and grant assistance to veterans for housing and other purposes (see pp. 342-343); and the Farm Improvement Loans Act, 1944 (see pp. 462-463) provides for guarantees for intermediate- and short-term loans made by approved lending agencies to farmers for housing and other purposes. These three statutes are concerned only incidentally with housing.

Provincial Assistance.—All provinces have complementary legislation providing for joint federal-provincial housing and land assembly projects and, in addition, most provinces have enacted separate legislation with respect to housing. Details of such assistance may be secured from the provincial government departments listed in the Directory of Sources of Official Information included in Chapter XXVII, under the heading of "Housing".

Subsection 2.—Housing Activities in 1964-65

Housing production in Canada reached an unprecedented level in 1964. The 165,658 housing starts recorded represented an increase of 11.5 p.c. over the previous year's total of 148,624 and housing completions, numbering 150,963, surpassed the 1963 volume of 128,191 by 17.8 p.c. Both starts and completions exceeded the former records established in 1958. Investment in new housing in 1964 amounted to \$2,027,000,000, a gain of 18.3 p.c. over the 1963 total of \$1,713,000,000. This upward swing in housing production continued throughout the first six months of 1965; for that period starts numbered 68,510 compared with 62,269 in the same months of 1964.

During 1964 and the first half of 1965 there was a nation-wide increase in the construction of rental accommodation. In 1964, production of apartment and row dwelling units reached 79,873, forming more than 48 p.c. of the over-all starts for the year and exceeding the 1963 output of these types of dwellings by 25.6 p.c. During the first six months of 1965, row and apartment construction increased by 22.3 p.c. over the same period of 1964 and accounted for 36,585 of the 68,510 housing starts. Production of home-ownership dwellings remained relatively stable during the 1964-65 period. In 1964, starts of single, duplex and semi-detached units numbered 85,785—virtually unchanged from the 1963 total of 85,049; in the first half of 1965, 33,360 dwellings of these types were begun compared with 31,925 in the same period of 1964.

A high percentage of the starts on home-ownership dwellings was undertaken as a result of federal action to spur construction activity during the winter months. This action included the provision of direct loans to builders under the NHA and the payment of \$500 to the owner or first purchaser of winter-built houses offered through the winter house-building incentive program. Both of these incentive measures will be in force again in the winter of 1965-66.

15.—Dwelling Units Started and Completed, by Type of Financing, 1955-64 and by Region, 1963 and 1964

(Exclusive of the Yukon and Northwest Territories)

Year and Region	Dwelling Units Started					Dwelling Units Completed
	National Housing Act		Conven- tional Insti- tutional Loans	All Other Financing	Total	
	CMHC Loans	Approved Lenders Loans				
	No.	No.	No.	No.	No.	No.
1955.....	2,120	63,076	35,999	37,081	138,276	127,929
1956.....	2,712	40,149	35,687	48,763	127,311	135,700
1957.....	22,331	23,971	32,866	43,172	122,340	117,283
1958.....	35,781	44,533	42,929	41,389	164,632	146,686
1959.....	35,229	26,596	45,198	34,322	141,345	145,671
1960.....	13,788	18,923	40,116	36,031	108,858	123,757
1961.....	23,852	35,334	38,316	28,075	125,577	115,608
1962.....	15,633	31,790	54,214	28,458	130,095	126,682
1963.....	21,213	28,505	71,983	26,923	148,624	128,191
1964.....	28,728	26,118	85,090	25,722	165,658	150,963
1963*						
Atlantic Provinces.....	613	591	3,146	2,612	6,962	7,903
Quebec.....	5,810	4,610	22,678	10,293	43,391	38,989
Ontario.....	7,053	17,334	27,449	4,121	55,957	43,400
Prairie Provinces.....	5,962	4,666	8,874	5,483	24,985	22,087
British Columbia.....	1,775	1,304	9,836	4,414	17,329	15,812
1964						
Atlantic Provinces.....	836	663	4,440	3,448	9,387	8,100
Quebec.....	8,115	2,569	25,653	6,857	43,194	43,658
Ontario.....	8,822	19,167	31,914	5,714	65,617	57,739
Prairie Provinces.....	8,170	2,772	8,888	6,165	25,795	24,685
British Columbia.....	2,785	947	14,395	3,538	21,665	16,781

16.—Dwelling Units Started in Metropolitan and Major Urban Areas, 1963 and 1964

Area	Population (Census 1961)	Dwelling Units Started				
		1963*	1964			
			Total	Single Detached	Semi- detached and Duplex	Row and Apartment
	'000	No.	No.	No.	No.	No.
Metropolitan Areas—						
Calgary.....	279	3,672	3,887	2,237	234	1,416
Edmonton.....	337	4,883	4,479	2,607	76	1,706
Halifax.....	184	1,660	1,688	423	208	1,057
Hamilton.....	395	3,868	5,670	2,023	26	3,621
Kitchener.....	155	2,628	3,173	1,261	76	1,836
London.....	181	2,129	2,668	1,069	164	1,435
Montreal.....	2,110	26,616	27,038	6,723	1,446	18,869
Ottawa-Hull.....	430	7,244	5,711	1,809	619	3,283
Quebec.....	358	4,535	4,257	1,872	198	2,187
Saint John.....	96	441	1,011	387	50	574
St. John's.....	91	521	449	429	20	—
Sudbury.....	111	484	271	260	6	5
Toronto.....	1,824	23,423	28,810	8,014	2,392	18,404
Vancouver.....	790	8,941	12,791	4,129	90	8,572
Victoria.....	154	1,848	2,674	896	40	1,733
Windsor.....	193	728	1,125	689	—	436
Winnipeg.....	476	4,519	4,189	2,176	194	1,819
Totals, Metropolitan Areas....	8,164	98,140	109,891	37,004	5,839	67,048
Major Urban Areas—						
Brantford.....	57	324	575	362	6	207
Chicoutimi-Jonquière.....	105	379	434	282	20	132
Drummondville.....	39	321	317	219	36	62
Fort William-Port Arthur.....	93	547	534	484	43	7
Guelph.....	42	271	612	262	16	334
Kingston.....	63	777	785	416	46	323
Moncton.....	56	308	492	243	76	173
Niagara Falls.....	55	313	290	171	4	115
Oshawa.....	81	1,314	1,591	872	16	703
Peterborough.....	50	266	390	216	4	170
Regina.....	112	1,512	1,985	951	97	937
St. Catharines.....	95	618	1,481	745	20	716
St. Jean.....	35	113	180	101	16	63
Sarnia.....	61	436	484	305	6	173
Saskatoon.....	96	1,156	1,526	782	60	684
Sault Ste. Marie.....	58	693	616	373	26	217
Shawinigan.....	64	171	134	114	4	16
Sherbrooke.....	70	972	1,017	304	112	601
Sydney-Glace Bay.....	106	103	237	158	6	73
Timmins.....	40	84	82	58	24	—
Trois-Rivières.....	84	589	428	325	82	21
Valleyfield.....	30	198	177	121	14	42
Totals, Major Urban Areas....	1,492	11,465	14,367	7,864	734	5,769
All Other.....	8,545	39,019	41,400	32,211	2,133	7,056
Canada¹.....	18,201	148,624	165,658	77,079	8,706	79,873

¹ Excludes the Yukon and Northwest Territories.

Operations under the National Housing Act.—NHA mortgage loans amounting to \$729,234,000 were approved in 1964 for the construction of 58,136 dwellings, compared with loans of \$687,522,000 approved for 56,259 units in 1963. The increase in lending activity continued throughout the first half of 1965 when loans were approved for the construction of 21,733 new dwellings, 3.4 p.c. more than for the same period of 1964.

For the first time since 1959 the level of direct lending by CMHC in 1964 surpassed the volume of insured loans by approved lenders operating under the Act. Loans by the federal housing agency, involving 29,939 units, had a value of \$376,577,000 and those made available through the private lenders amounted to \$352,657,000 for 28,197 dwellings. With

the approval of loans for 14,338 units, trust companies were the largest source of funds for insured mortgage lending in 1964; lending activity by life insurance companies represented 12,261 dwellings.

The reduced volume of NHA lending by the private companies was accompanied by a marked upswing in conventional loans from these sources. This type of assistance was extended for 85,090 dwellings started during the year as against 71,983 in 1963. Much of the increase resulted from the demand for funds to support the unprecedented volume of rental construction, and important innovations in lending practices served to channel additional mortgage money into the home-ownership sector. In response to a demand for loans in excess of the limit of 66½ p.c. they were permitted to make under a first mortgage, a number of lending institutions joined with other financial firms to make combined first and second mortgage loans of 83½ p.c. on the security of owner-occupied, single-family houses and duplexes. With Parliamentary approval in March 1965 of an increase in the permissible first mortgage limit to 75 p.c., combined first and second mortgages representing 87½ p.c. of lending value became available.

As in 1963, the highest level of direct lending by CMHC was reached in the last quarter of the year because many prospective home owners postponed their building plans to take advantage of the \$500 bonus payment offered under the Federal Government's winter house-building incentive program.

17.—Mortgage Loans Approved by Lending Institutions, by Type of Property and of Loan, 1955-64

Year	New Housing		Existing Houses	Other Property	Total
	NHA Loans	Conventional Loans	Conventional Loans	Conventional Loans	
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
1955.....	639	235	183	138	1,195
1956.....	425	255	177	141	998
1957.....	278	239	150	104	771
1958.....	519	291	208	174	1,192
1959.....	308	343	216	216	1,083
1960.....	242	307	221	263	1,033
1961.....	453	333	300	298	1,384
1962.....	412	450	358	311	1,531
1963.....	385	652	430	373	1,840
1964.....	353	812	640	507	2,312

Borrower and House Characteristics.—Applicants for NHA loans in 1964 had an average income of \$6,375 compared with \$6,179 in 1963. The average income of purchasers who obtained loan assistance through approved lenders operating under the Act was \$6,700 and of those who obtained direct loans from CMHC, \$6,035. The cost of the average NHA-financed house, at \$15,826, was approximately \$600 higher in 1964 than in 1963. Down payments, including any secondary financing, averaged \$2,700, slightly above the \$2,634 average for the previous year. For a large portion of borrowers, the \$500 bonus available under the federal winter house-building incentive program was applied to the down payment requirement. On the average, payments of mortgage principal and interest, together with taxes, represented 21.5 p.c. of the borrower's income, virtually unchanged from 1963. The average age of borrowers was 34.7 years and 56 p.c. of the families had one or two children. More than 71 p.c. of the borrowers were purchasing a house for the first time.

Three of every four houses constructed were bungalows, 20 p.c. were split-level dwellings and the remainder were mainly two-storey units. There was a small increase in the size of the average dwelling financed under the NHA—from 1,204 sq. feet in 1963 to 1,218 sq. feet in 1964.

Loans to Non-profit Corporations and Limited-Dividend Companies.—In 1964, 44 loans in an aggregate amount of \$12,000,000 were approved to non-profit corporations to assist in the construction of 1,861 self-contained units of low-rental housing and hostel accommodation for 266 persons. Of the total, 1,708 units were intended for occupancy by elderly people and 153 by low-income families. In 1963, 36 limited-dividend loans to non-profit housing companies and private entrepreneurs were approved for the construction of 2,094 dwellings.

Home Improvement Loans.—There was a slight decline in the volume of NHA-guaranteed bank loans for home improvement purposes in 1964. Loan approvals during the year numbered 19,800 for \$36,000,000 as against 22,024 and a value of \$36,700,000 in 1963. At the end of 1964, the outstanding debt on such loans was reported by the banks at \$72,100,000 compared with \$71,700,000 a year earlier. The Home Improvement Loan Insurance Fund, comprised of fees received from borrowers, increased by \$200,000 during the year to reach \$2,800,000 at Dec. 31, 1964.

Loans for University Housing Projects.—Loans totalling \$39,600,000 were approved in 1964 for 22 university housing projects providing accommodation for 7,344 students, a substantial increase over 1963 activity when assistance was authorized for developments housing 6,397 students. Loans approved in 1964 were distributed provincially as follows:—

<u>Province</u>	<u>Loans</u>	<u>Amount</u>	<u>Students to be Accommodated</u>
	No.	\$'000	No.
Nova Scotia.....	1	1,273	213
New Brunswick.....	2	1,324	220
Quebec.....	10	22,494	4,312
Ontario.....	8	15,770	2,499
Manitoba.....	1	640	100

From December 1960, when university housing loans were first authorized, to December 1964, 95 loans totalling \$110,300,000 were approved for the construction of residences for 22,374 students. In June 1965, the statutory limit that may be advanced for such loans was increased from \$150,000,000 to \$200,000,000.

Loans for Municipal Sewage-Treatment Projects.—During 1964, 220 loans amounting to \$26,200,000 were authorized to assist 146 municipalities to undertake sewage-treatment projects, distributed provincially as follows:—

<u>Province</u>	<u>Loans</u>	<u>Amount</u>	<u>Province</u>	<u>Loans</u>	<u>Amount</u>
	No.	\$'000		No.	\$'000
Newfoundland.....	3	91	Ontario.....	65	13,877
Prince Edward Island.....	1	10	Manitoba.....	16	1,430
Nova Scotia.....	1	20	Saskatchewan.....	49	922
New Brunswick.....	6	231	Alberta.....	16	1,647
Quebec.....	45	5,990	British Columbia.....	18	1,947

From December 1960, when the Act was amended to provide assistance for sewage-treatment projects, to December 1964, 752 loans totalling \$144,900,000 were approved to 540 municipalities.

Mortgage Marketing.—Sales of NHA-insured mortgages amounted to \$150,200,000 in 1964 as compared with a 1963 amount of \$129,100,000. The 1964 total included \$75,300,000 in sales through three mortgage auctions held by CMHC to promote the development of a secondary mortgage market. From June 1961, when the first mortgage auction was held by the Corporation to the end of December 1964, sales by CMHC to members of the Investment Dealers' Association of Canada, NHA-approved lenders and their approved correspondents totalled \$227,800,000. Such sales are subject to the condition that the mortgages be resold or used as collateral for securities backed by NHA mortgages.

Urban Renewal.—Federal assistance for urban renewal increased to \$10,517,000 in 1964 as municipalities took advantage of broadened financial aid authorized by amendments to the NHA passed by Parliament in June. Assistance for this purpose in 1963 was \$3,700,000.

Activity in 1964 included a net contribution of \$4,000,000 to the City of Vancouver to assist in the acquisition and clearance of some 25 acres of the 70-acre Alexandra Park renewal area in the downtown region; the over-all project involves the clearance of a central block of 16 acres and of several isolated blocks throughout the area. The City of Vancouver obtained a net contribution of \$2,000,000 to acquire and clear 28.5 acres of land in three areas in the east end of the city and Hamilton obtained \$4,400,000 to acquire and clear 30 acres and undertake an extensive municipal works and services program in a 270-acre renewal area near its harbour. An amount of \$117,000 was approved for Kingston to acquire and clear some 16 acres of land in the Rideau Heights area of the city.

Grants totalling \$66,785 were authorized to assist the municipalities of Dartmouth and Glace Bay in Nova Scotia, Eastview and Preston in Ontario and Prince Albert in Saskatchewan to undertake studies of local housing conditions. Also, contributions of \$137,000 to Hamilton and \$56,500 to Vancouver were approved for the preparation of urban renewal schemes.

Public Housing.—Approval was given during 1964 for the development under federal-provincial partnership arrangements of public housing projects in Halifax, Hamilton, Oshawa, Swift Current and Vancouver. These projects will provide a total of 790 dwelling units for low-income families and elderly persons. Since the initial project was authorized in 1950, public housing developments comprising 12,674 units have been approved. One loan-assisted public housing project—first authorized by the June 1964 amendments to the NHA—was approved; CMHC was authorized to make a loan and enter into a subsidy agreement with the Ontario Housing Corporation for the development of a 40-unit project for senior citizens in Hamilton.

Land Assembly.—Two land assembly projects were approved under federal-provincial arrangements in 1964. The developments, located at Swift Current, Sask., and Wawa, Ont., will provide a total of 185 serviced building lots. From the inception of the program in 1948 to the end of 1964, a total of 18,296 lots had been authorized for development and 10,985 had been sold.

Subsection 3.—Housing Statistics of the 1961 Census*

The tremendous upsurge in building construction in the 1951-61 decade is reflected in the 1961 Housing Census results† which recorded 1,145,198 more occupied dwellings in 1961 than in 1951, the total for Canada in the later year being 4,554,493. The rate of increase in occupied dwellings of 33.6 p.c. exceeded the population increase of 30.2 p.c. in the same period.

Table 18 gives a summary of housing characteristics for Canada in 1951 and 1961. In this period both owned and rented dwellings increased by about one third and single detached dwellings and apartments and flats increased at about the same proportionate rate. The median value of homes was \$11,021 in 1961 and the median monthly cash rent \$62. Almost two out of five dwellings were constructed in the postwar period, a fact reflected in part in the proportion of dwellings in need of repair, which dropped from 13.4 p.c. in 1951 to 5.6 p.c. in 1961.

* More detailed information may be found in Vol. II (Part 2) of the 1961 Census (Catalogue Nos. 93-523 to 93-535).

† Based on a 20-p.c. sample of occupied dwellings across Canada. A dwelling, for census purposes, is a structurally separate set of living quarters with a private entrance either from outside the building or from a common hall or stairway inside. The entrance must not be through anyone else's living quarters.

18.—Housing Characteristics, Censuses of 1951 and 1961

Item		1951 ¹	P.C. of Total	1961	P.C. of Total
Totals, Occupied Dwellings	No.	3,409,295	100.0	4,554,493	100.0
Tenure—					
Owner-occupied.....	No.	2,236,955	65.6	3,005,587	66.0
Tenant-occupied.....	"	1,172,340	34.4	1,548,906	34.0
Type—					
Single detached.....	No.	2,275,615	66.7	2,978,501	65.4
Apartments, flats.....	"	885,565	26.0	1,151,098	25.3
Dwellings by period of construction—					
Before 1920.....	No.	..	..	1,391,719	30.6
1920-1945.....	"	..	..	1,148,389	25.2
Since 1945.....	"	..	..	2,014,385	44.2
Dwellings in need of major repair.....	No.	457,570	13.4	255,414	5.6
Av. rooms per dwelling.....	No.	5.3	...	5.3	...
Av. bedrooms per dwelling.....	"	..	..	2.7	..
Crowded dwellings ²	"	641,820	18.8	750,942	16.5
Median value.....	\$	..	..	11,021	...
Dwellings with mortgage ³	No.	394,910	29.3	979,966	45.5
Median monthly cash rent ⁴	\$	34	...	62	...
Dwellings heated principally by—					
Coal or wood.....	No.	2,387,375	70.0	1,062,751	23.3
Oil.....	"	774,535	22.7	2,565,416	56.3
Gas.....	"	163,165	4.8	857,953	18.8
Dwellings with—					
Steam or hot water furnace.....	No.	529,465	15.5	829,984	18.2
Hot air furnace.....	"	1,052,570	30.9	2,242,237	49.2
Hot and cold running water.....	"	1,939,770	56.9	3,650,115	80.1
Bath or shower.....	"	2,072,875	60.8	3,659,520	80.3
Flush toilet.....	"	2,328,855	68.3	3,880,512	85.2
Mechanical refrigerator.....	"	1,594,980	46.8	4,145,086	91.0
Passenger automobile.....	"	1,442,595	42.3	3,114,677	68.4

¹ Exclusive of the Yukon and Northwest Territories.² Dwellings in which the number of persons

exceeded the number of rooms.

³ Figures relate to owner-occupied, single detached, non-farm dwellings

only.

⁴ Figures relate to non-farm dwellings only.

Among the provinces, Alberta had the largest proportionate gain over 1951, recording an increase of 39.5 p.c. and 99,059 dwellings; Ontario was first numerically with 459,625 more dwellings in 1961 than in 1951, an increase of 38.9 p.c. Saskatchewan had the largest proportion of the single detached type in 1961, 85.7 p.c. of its occupied dwellings being in that category. On the other hand, 49 p.c. of Quebec's dwellings were apartments or flats, the highest among the provinces. The largest homes were in Prince Edward Island where they had an average of 6.4 rooms and 3.3 bedrooms. The smallest were in British Columbia and the Prairie Provinces where they averaged 4.9 rooms and 2.4 bedrooms (2.5 bedrooms in Saskatchewan). Crowded homes (those in which the number of persons exceeded the number of rooms) were most in evidence in Newfoundland where about three out of ten were thus classified. The proportion of such homes was lowest in Ontario at 11.8 p.c.

Among the metropolitan areas, Vancouver, Victoria and Windsor had the largest proportion of single detached type dwellings in 1961, with 75.9 p.c. of their homes in that category; 69.8 p.c. of Montreal's dwellings were apartments or flats, the highest proportion for this group. Largest homes, on the average, were found in St. John's, Nfld., where they averaged 5.7 rooms and 3.0 bedrooms, and the smallest were in Sudbury, Ont., where they had an average of 4.6 rooms and 2.3 bedrooms.

Tables showing housing characteristics and tenure of occupied dwellings, by province and metropolitan area, are given in the 1965 Year Book at pp. 710-711.

CHAPTER XVIII.—LABOUR*

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

Section 1.—The Government in Relation to Labour

Subsection 1.—The Federal Department of Labour and Federal Labour Legislation

The Department of Labour.—The federal Department of Labour was established in 1900 under the Conciliation Act which provided machinery to aid in preventing and settling labour disputes and required the Department to collect, compile and publish statistical and other relevant information. The Department also assumed the administration of the Fair Wages Policy adopted in the same year for the protection of workmen employed in the execution of Federal Government contracts and on works aided by grants from public funds. Since that time the Department has been charged with the administration of new legislation and has taken on new functions. Its work today falls very broadly into two main areas—industrial relations and manpower supply.

The legislation it administers in the industrial relations area applies to employers, workers and trade unions under federal jurisdiction. The Department is responsible for conciliation procedures in industrial disputes, the investigation of complaints of unfair labour practices, refusals to bargain and violations of legislation, the processing of applications for the certification and decertification of trade unions and the conducting of representation votes. It determines wage rates and hours of work in Federal Government contracts for construction or supplies, and promotes joint labour-management consultation. It also administers legislation to prevent discrimination in employment based on race, religion, colour or national origin and to provide for equal pay for female employees. In 1965, the Canada Labour (Standards) Code became law. The Code establishes minimum standards of wages, hours of work, vacations with pay and paid general holidays in industries under federal jurisdiction.

* Except as otherwise noted, this Chapter has been revised under the direction of the Deputy Minister of the Department of Labour, Ottawa.

In the manpower supply area, the Department has been increasingly concerned with promoting the best use of all available manpower resources. Under federal-provincial agreements, assistance is provided to the provinces for the construction and equipping of technical and vocational schools and for the operation of a variety of training programs, including training for the unemployed in provincially organized courses.* The Department is responsible for the co-ordination of the national program for the vocational rehabilitation of the civilian disabled, and provides financial assistance, also under federal-provincial agreements, to provincial rehabilitation programs.† The Manpower Consultative Service went into operation in 1964 to assist management and unions in carrying on advance planning to meet the manpower effect of automation and other technical changes and so to reduce hardship and unemployment. The Manpower Mobility Program, introduced in 1965, offers financial help to unemployed workers who wish to move with their families to places where jobs are available. Also in 1965, the National Employment Service, formerly operated by the Unemployment Insurance Commission, was transferred to the Department of Labour (see p. 749).

To stimulate winter activity and so increase winter employment, the Department organizes, in co-operation with the National Employment Service, the annual nation-wide "Do It Now" winter employment campaign to persuade home and business owners to plan inside renovation and repair work for the cold months. It is also responsible for the municipal winter works incentive program, through which the Federal Government contributes toward winter works projects undertaken by municipalities. As a further stimulus to winter employment, a winter house-building incentive program was introduced in 1963-64 (see p. 711) and has since been continued.

Research, involving regular surveys and analyses of economic and social trends affecting the labour force, is an important part of the Department's work. It studies wages and working conditions, employment and unemployment, particular occupations, the training and utilization of manpower, union organization and collective bargaining.

Through the Women's Bureau and the Division on Older Workers, it investigates the problems of women and of older persons in the labour force. It assists in the movement of farm workers between provinces and between Canada and the United States, under federal-provincial agreements. It operates a plan of workmen's compensation for seamen on Canadian ships, and arranges workmen's compensation for Federal Government employees.

The Department publishes the monthly *Labour Gazette*, maintains records of labour legislation in the provinces and in other countries and operates a labour lending library. It provides liaison between the International Labour Organization and the federal and provincial governments, and is responsible for the sale and administration of Canadian Government annuities.

Federal Labour Legislation.—Fair Wages Policy.—The Fair Wages Policy applying to all Federal Government contracts was first set forth in a Resolution of the House of Commons (1900) and later incorporated in an Order in Council and amended from time to time. Wages and hours on contracts for construction are now regulated by the Fair Wages and Hours of Labour Act (RSC 1952, c. 108) and Order in Council PC 1954-2029 of Dec. 22, 1954. Hours of work on construction contracts are limited to eight per day and 44 per week, except in an emergency approved by the Minister or in special circumstances where exemption is granted by Order in Council; wages to be paid are those current for the type of work in the district or, if there are no current rates, fair and reasonable rates as determined by the Minister of Labour.

Wages and hours of work on contracts for equipment and supplies are also regulated by Order in Council PC 1954-2029. The hours of such work must be those fixed by the custom of the trade in the district where the work is performed, or fair and reasonable

* See Education Chapter, pp. 352-354.

† See Public Health, Welfare and Social Security Chapter, pp. 328-329.

hours. The wages must be current or fair and reasonable but in no event shall they be less than those established by statute or regulation of the province in which the work is being performed. This Order in Council contains a clause prohibiting discrimination against any person in matters of employment because of that person's race, national origin, colour or religion, or because he has made a complaint or given information with respect to such alleged discrimination.

*Government Prevailing Rate Employees.**—Many departments and agencies of government employ non-office workers in public buildings, defence establishments, parks and forests, experimental farms, canal operation, airports and government vessels, survey parties, special projects, etc. Such positions are exempt from the operations of the Civil Service Act and rates of pay are fixed by the Treasury Board in consultation with the Department of Labour on the basis of prevailing private industry rates for comparable work in the appropriate area. Data used in the determination of these pay rates are secured from wage surveys made by Industrial Relations Officers of the Department of Labour, from wage research conducted by the Economics and Research Branch, and from collective agreements and wage rates established under the legislation of some provinces.

The Labour Standards Branch also recommends rates of pay for 4,000 commissionaires employed by various government departments and agencies throughout Canada, provides wage data to assist certain Crown corporations in the preparation of their wage schedules, and gives assistance in the establishment of class titles, job descriptions and the application of job evaluation techniques.

Three sets of comprehensive Regulations have been established by the Treasury Board governing hours of work, overtime, vacations, statutory holidays, sick leave, pensions, etc., for (1) prevailing rate workers generally employed, (2) ships' officers and (3) ships' crews.

The Industrial Relations and Disputes Investigation Act.—This legislation came into effect by proclamation on Sept. 1, 1948, revoking the Wartime Labour Relations Regulations in effect since March 1944 and repealing the Industrial Disputes Investigation Act which had been in force from 1907 until suspended by the Wartime Regulations in 1944. The Act protects proceedings commenced and decisions, orders and certifications made under the wartime legislation in so far as these involve services authorized by the Act.

The Act applies only to industries within federal jurisdiction, viz., navigation, shipping, interprovincial railways, canals, telegraphs, steamship lines and ferries, both international and interprovincial, aerodromes and air transportation, radio broadcasting stations, and works declared by Parliament to be for the general advantage of Canada or of two or more provinces. However, the Act provides that provincial authorities if they so desire may enact similar legislation for application to employees within provincial jurisdiction and make mutually satisfactory arrangements with the Federal Government for the administration of such legislation by the federal authorities.

In general, the Act in its important features provides that employees and employers shall have the right to organize and bargain collectively and that trade unions may be certified as bargaining agents for employee groups. Trade unions and employers are required, upon notice, to bargain collectively in good faith. The Act provides for invoking collective bargaining negotiations and for the mediation of conciliation officers and conciliation boards in reaching collective agreements. Employees may change bargaining agents at times under conditions specified in the Act, which also prescribes conditions affecting the duration and renewal of collective agreements. Collective agreements are required to contain provision for the arbitration of disputes concerning the meaning or violation of such agreements and where such provision is lacking application may be made for its establishment. The Act prohibits unfair labour practices, i.e., the interference with or domination of trade unions by employers or interference, discrimination and coercion in trade union activity.

* Statistics on numbers and earnings of prevailing rate and other groups of federal employees exempt from the Civil Service Act are given at pp. 146-155.

The conditions that must be observed prior to strike and lockout action are set down in the Act. Industrial inquiry commissions may be appointed to investigate industrial matters or disputes.

The Minister of Labour is charged with the administration of the Act and is directly responsible for the provisions affecting the appointment of conciliation officers, conciliation boards, industrial inquiry commissions, consent to prosecute, and complaints that the Act has been violated or that a party has failed to bargain in good faith.

The Canada Labour Relations Board administers provisions concerning the certification of bargaining agents, the writing of a procedure into a collective agreement for the final settlement of disputes concerning the meaning or violation of such agreement, and the investigation of complaints made to the Minister that a party has failed to bargain collectively.

Detailed statistics concerning activities under the Act may be found in the Annual Report of the Department of Labour. In brief, from Sept. 1, 1948 to Dec. 31, 1964, the Canada Labour Relations Board received 1,619 applications for certification, 948 of which were granted, 335 rejected, 322 withdrawn and 14 were pending at the end of the period. Of the 1,040 industrial disputes dealt with under the conciliation provisions of the Act, 912 were settled by conciliation officers and conciliation boards, 71 were not settled, 29 lapsed and 28 were pending at Dec. 31, 1964.

Labour-Management Co-operation Service.—During World War II, production committees based on the principle of joint consultation between labour and management were established in many vital industries. Since 1947 the establishment of labour-management committees in industry has been encouraged and assisted by the Labour-Management Co-operation Service, a division of the Industrial Relations Branch of the Department of Labour. There are now more than 1,909 active committees whose efforts are directed toward such objects as better understanding between management and labour, improved production efficiency, improved quality, reduction of waste, accident prevention, good housekeeping and reduction of absenteeism.

Reinstatement in Civil Employment Act.—This Act provides for the reinstatement in their civil employment of discharged members of the Armed Forces and other designated persons. It was originally passed in 1942, revised in 1946, and broadened in its application in 1954.

Canada Fair Employment Practices Act.—This Act, which came into effect on July 1, 1953, prohibits discrimination in employment based on race, colour, religion or national origin. It applies only to industries within federal jurisdiction—those covered by the Industrial Relations and Disputes Investigation Act (see p. 719). This law prohibits acts of discrimination by employers; discrimination by trade unions in regard to membership or employment; the use by employers of employment agencies that practise discrimination; and the use of advertisements or inquiries in connection with employment that express, directly or indirectly, any limitation, specification or preference as to race, colour, religion or national origin.

Female Employees Equal Pay Act.—This Act came into effect on Oct. 1, 1956 and applies to employers and employees engaged in works, undertakings or businesses coming within federal jurisdiction. The Act, in its principal provision, prohibits an employer from employing a female for any work at a rate of pay that is less than the rate at which a male is employed by that employer for identical or substantially identical work.

Canada Labour (Standards) Code.—This Act received Royal Assent on Mar. 18, 1965 when the administration and general provisions in Part V came into effect. The Act provides in Parts I to IV, which came into force on July 1, 1965, minimum standards with respect to hours of work, minimum wages, annual vacations and general holidays in industries under federal jurisdiction. Under Sect. 23, Part III of the Code, the Annual Vacations Act, which was in effect from October 1958, was repealed.

Subsection 2.—Provincial Labour Legislation

Because of the authority given by the British North America Act to the provincial legislatures to make laws in relation to local works and undertakings and in relation to property and civil rights in the province, power to enact labour legislation is largely the prerogative of the provinces. Since it imposes conditions on the rights of the employer and employee to enter into a contract of employment, labour legislation is, generally speaking, law in relation to civil rights. Under this authority, the provincial legislatures have enacted a large body of legislation affecting the employment relationship in such fields as working hours, minimum wages, the physical conditions of workplaces, apprenticeship and training, wage payment and wage collection, labour-management relations, workmen's compensation and other matters. In each province a Department of Labour is charged with the administration of labour laws. Legislation for the protection of miners is administered by departments dealing with mines. The workmen's compensation law in each province is administered by a Workmen's Compensation Board appointed by the Lieutenant-Governor in Council.

As a means of ensuring adequate living standards for workers, all provinces have enacted minimum wage legislation. These laws vest in a minimum-wage-fixing board authority to set minimum wages for employees. Five provinces have general hours-of-work laws, which either limit daily and weekly working hours or require the payment of an overtime rate if work is continued beyond specified daily and weekly hours.

Hours of work are also restricted and minimum wages established for certain types of employment under industrial standards legislation in Nova Scotia, New Brunswick, Ontario, Saskatchewan and Alberta, under the Manitoba Construction Industry Wages Act and under the Quebec Collective Agreement Act (see p. 726).

Eight provinces have passed annual vacations laws (see pp. 723-724) and in most provinces there is legislation setting a minimum age for the employment of young workers in various industries and occupations. A weekly day of rest is provided for by law in most provinces. In two provinces there are statutory requirements regarding the observance of certain public holidays.

Factory or industrial safety Acts in most provinces establish safeguards for the protection of the health and safety of workers in factories and other workplaces with respect to such matters as sanitation, heating, lighting, ventilation and the guarding of dangerous machinery. Long-established laws regulating the design, construction, installation and operation of mechanical equipment such as boilers and pressure vessels, elevators and lifts and electrical installations, have been revised in recent years in line with technological changes, and legal standards have been set in new fields involving hazards to workers and the public, such as the use of gas- and oil-burning equipment. This legislation also prescribes standards of qualification for workers who install, operate or service such equipment. Laws requiring measures to be taken to eliminate accidents in construction and excavation work are in force in a number of jurisdictions.

All provinces have apprenticeship laws providing for an organized procedure of on-the-job training and school instruction in designated skilled trades, and statutory provision is made in most provinces for the issue of certificates of qualification, on application, to qualified tradesmen in certain trades. In some provinces legislation is in effect making it mandatory for certain classes of tradesmen to hold a certificate of competency.

In all provinces there is legislation similar in principle to the federal Industrial Relations and Disputes Investigation Act, designed to establish equitable relations between employers and employees and to facilitate the settlement of industrial disputes. These laws guarantee freedom of association and the right to organize, establish machinery (labour relations boards) for the certification of a trade union as the exclusive bargaining agent of an appropriate unit of employees, and make compulsory collective bargaining between an employer and the certified trade union representing his employees. Except in Saskatchewan, they provide for compulsory conciliation, that is, they require the parties to

comply with the conciliation procedures laid down in the Act before a strike or lockout may legally take place. A two-stage conciliation process is provided for—the intervention of a conciliation officer at the first stage of a dispute and, failing settlement, the establishment of a conciliation board. The Acts also provide for the compulsory settlement of any dispute that arises out of a collective agreement, and prohibit strike action while an agreement is in force. All prescribe and provide penalties for unfair labour practices. In some provinces certain classes of employees who are engaged in essential services, such as policemen and firemen, are forbidden to strike and, in lieu of the right to strike, have recourse to final and binding arbitration.

Seven provinces have adopted fair employment practices laws forbidding discrimination in hiring and conditions of employment and in trade union membership on grounds of race, colour, religion or national origin. In addition, the British Columbia law prohibits discrimination in employment or in trade union membership on grounds of age. The same provinces have laws providing that places to which the public is customarily admitted (the Quebec law applies to hotels, restaurants and camping grounds only) must be open to all without regard to race, colour, religion or national origin. Eight provinces have equal pay laws, which forbid discrimination in rates of pay solely on the basis of sex, and the Quebec statute respecting discrimination in employment forbids discrimination in employment on the basis of sex. In Ontario and Nova Scotia, fair employment practices, fair accommodation practices and equal pay laws have been combined in one statute (the Ontario Human Rights Code and the Nova Scotia Human Rights Act).

Workmen's compensation legislation providing a system of collective liability on the part of employers for accidents occurring to employees in the course of their employment are in force in all provinces. Workmen's compensation laws are described in greater detail on p. 750.

Changes in 1964.—There were a number of significant developments in provincial labour laws in 1964.

In Nova Scotia, a new Minimum Wage Act was passed, giving the Minimum Wage Board authority to set minimum rates for workers of both sexes. The law previously in effect applied to women only. The Act also contained provisions requiring an employer or employee to give at least one week's notice of termination of employment, if the employee has been in the employer's service for three months or more, and provided that all wages owing must be paid within 10 days of termination of employment.

New Brunswick enacted a Minimum Employment Standards Act, laying down requirements regarding weekly rest, minimum age for employment, working hours of women and boys under 18 and maternity leave which are applicable in every place of employment other than a private home or a farm.

The New Brunswick Vacation Pay Act was extended to cover virtually all employees in the province except domestic servants and farm workers. An amendment to the Alberta Labour Act gave the Board of Industrial Relations authority to provide for paid public holidays.

In Ontario, the Industrial Standards Act was extensively revised, putting into effect many of the recommendations of a Committee of Inquiry which had studied the scope and operation of the Act. Manitoba replaced its Fair Wage Act by the Construction Industry Wages Act. Provision was made, as before, for the setting of minimum rates of wages and maximum hours of work at regular rates for employees in the construction industry, based on the recommendations of a board equally representative of employers and employees in the industry, with a public member as chairman. Separate boards for different sectors of the industry are now provided for.

The Saskatchewan Legislature raised the school-leaving age from 15 to 16 years.

In Quebec, an Act was passed forbidding discrimination in employment and in trade union membership on grounds of race, colour, sex, religion, national extraction or social

origin. The British Columbia Fair Employment Practices Act was amended to prohibit discrimination in employment or in trade union membership against persons between the ages of 45 and 65 solely on grounds of their age.

Two provinces enacted new legislation designed to promote the training of more skilled workers. The Ontario Apprenticeship and Tradesmen's Qualification Act is a major revision of earlier legislation, along the lines suggested by a Select Committee on Manpower Training, providing the legislative authority for an expanded and modernized system of apprenticeship training and an extension of both compulsory and voluntary certification of tradesmen. The New Brunswick Tradesmen's Qualifications Act made provision for compulsory certification of tradesmen in designated trades.

Quebec adopted a new Labour Code and changes were made in the labour relations laws of several other provinces. The new Labour Code of Quebec puts into force new principles for the regulation of employer-employee relations in the province. It broadens the right of association, bringing virtually all workers in the province within its scope. Public service employees, who were formerly forbidden to strike and were compelled to submit all disputes to arbitration, have been granted the right to strike, subject to restrictions similar to those laid down in the United States Taft-Hartley Act. Compulsory arbitration no longer exists, except with respect to policemen and firemen. Amendments to the Nova Scotia Trade Union Act made the Labour Relations Board responsible for handling unfair labour practice charges.

Ontario passed the Industry Safety Act, a thorough revision and up-dating of its factory legislation, and issued comprehensive new regulations, strengthening and extending safeguards for employee safety. New Brunswick revised and replaced its Industrial Safety Act, which now applies to all workplaces except private homes and mining operations. This Act is also to be supplemented by extensive regulations.

Workmen's compensation laws were amended in six provinces. In Newfoundland, the maximum yearly earnings on which compensation may be paid were increased from \$4,000 to \$5,000. Manitoba and Ontario set higher minimum payments for total disability. Of special importance were the provisions in Manitoba and Quebec increasing payments to disability pensioners in respect to past accidents. In Ontario, the age limit for the payment of children's allowances was removed, permitting payments to be made, at the discretion of the Workmen's Compensation Board, as long as a child is continuing his studies. Increased expenditures for rehabilitation services were authorized in Manitoba and Ontario.

Further information about legislative changes in 1964 may be found in the *Labour Gazette*, October to December 1964 issues.

Regulation of Hours and Annual Vacations.—Ontario, Manitoba, Saskatchewan, Alberta and British Columbia have statutes of general application limiting working hours. The Acts are of two types. Those of Ontario, Alberta and British Columbia set actual limits on daily and weekly hours, and provide that work may not be carried on beyond those limits except with the permission of the administrative authority. The Manitoba and Saskatchewan Acts regulate hours through the requirement that one and one half times the regular rate must be paid if work is continued after specified limits. The Nova Scotia Minimum Wage Act passed in 1964 permits the Minimum Wage Board to limit hours of work but so far no limitations have been imposed. Hours are also regulated under the Industrial Standards Acts, the Manitoba Construction Industry Wages Act and the Quebec Collective Agreement Act (see p. 726) and there is, in addition, some regulation of hours under other legislation, such as factories Acts, mines Acts and, in Newfoundland, legislation governing shops.

In Ontario, working hours are limited to eight in a day and 48 in a week. In Alberta, the maximum daily and weekly hours permitted to be worked in all centres with a population of over 5,000 are eight and 44, and in the remainder of the province they are eight and 48. In British Columbia, hours are limited to eight in a day and 44 in a week. Under the Saskatchewan law, one and one half times the regular rate must be paid for work done

after eight hours in a day and 44 hours in a week, except in workplaces (other than factories) in the smaller centres, where the overtime rate must be paid after a 48-hour week. In addition to the above, the Lieutenant-Governor in Council has authority to limit daily hours in any class of employment in order to prevent the working of excessive hours; this authority has been used to limit daily hours to 12 in highway construction and maintenance. The Manitoba Act, which applies to the chief industrial areas of the province, requires one and one half times the regular rate to be paid after eight hours in a day and after 48 hours in a week for men and 44 hours for women. The Manitoba and British Columbia Acts cover specified industries but the other three Acts apply to most industries in the province concerned.

All provinces except Newfoundland and Prince Edward Island have annual vacations legislation applicable to most industries. In Nova Scotia, New Brunswick, Quebec and Ontario, workers are entitled to a vacation with pay of one week after a year of service; in the four western provinces, a vacation of two weeks with pay must be granted after a year of employment. In Saskatchewan, a worker becomes eligible for a vacation of three weeks after five years of service with the same employer. A worker employed for less than a year is entitled, in Quebec, to a half-day for each month of employment and, in Saskatchewan, to one day for every month. Coal miners in Alberta are entitled to a vacation of one day for every 20 days worked in a month but not more than two weeks in a year.

A stamp system of vacation pay credits is in effect for the construction industry in Alberta and Nova Scotia. In Ontario, the stamp system is used in any industry (including construction) in which employment is terminated during a working year. In Manitoba, vacation pay of transitory construction workers in Metropolitan Winnipeg is deposited by employers with the Department of Labour and disbursed to employees by cheque after the first day of July in each year.

Farm workers are excluded from the vacation provisions in all provinces and domestic servants in all but Manitoba and Saskatchewan. In addition, New Brunswick exempts certain part-time workers; Quebec exempts employees of municipal and school corporations, janitors and caretakers, salesmen with less than three months experience and certain part-time workers; Ontario exempts professional workers, salesmen, flower, fruit and vegetable growers, and funeral directors and embalmers; Nova Scotia excludes workers engaged in lumbering and commercial fishing; Alberta exempts salesmen; Manitoba and Saskatchewan exclude ranch and market garden employees; and British Columbia exempts professional workers and horticultural workers. Workers covered by decrees under the Quebec Collective Agreement Act are excluded from the vacation order and are subject to the annual vacation provided for in the decree concerned.

Minimum Wage Regulations.—All provinces have minimum wage legislation under which minimum rates are fixed by a government board. The British Columbia board makes a separate order for each industry or occupation. In New Brunswick, five new industry orders issued in 1964 and in force on Jan. 1, 1965, together cover most employees in the province. In the other provinces general orders are issued setting rates which apply to most industries and occupations. Except in two provinces, the general orders apply to both sexes. In Nova Scotia, minimum rates have been set for women only but a new Minimum Wage Act passed in 1964 gives authority to set rates for both sexes.* In Prince Edward Island, a general minimum wage order for male workers is in effect; the only rates set for women are for restaurant workers in Charlottetown and Summerside and for laundry workers throughout the province. Nova Scotia, Ontario and Quebec are divided into zones for minimum wage purposes and rates are set according to zone. In the three Prairie Provinces rates vary between rural and urban areas. Elsewhere minimum rates apply throughout the province. Weekly rates are set in some provinces, hourly rates in others.

Table 1 shows the minimum rates in effect on Jan. 1, 1965, for several classes of establishment in the principal cities.

* A new general order in Nova Scotia in force on Feb. 20, 1965, sets rates for both men and women.

1.—Minimum Wage Rates for Experienced Workers in Certain Cities, by Sex, Jan. 1, 1965

Item, Type of Establishment and Sex	St. John's, Nfld.	Charlottetown, P.E.I.	Halifax, N.S.	Saint John, N.B.	Montreal, Que.	Toronto, Ont.	Winnipeg, Man.	Regina, Sask.	Edmonton, Alta.	Vancouver, B.C.
Maximum hours per week to which the rates apply.	M. 48 F. 48	— 48	— 48	— 48	48 ¹ 48 ¹	48 48	48 44	44 44	44 44	40 ² 40 ²
	cts. per hour	cts. per hour	\$ per week	cts. per hour	cts. per hour	\$ per hour	cts. per hour	\$ per week	\$ per week	\$ per hour
Factories.....	M. 70 F. 50	1.00 ³ —	— 21.60	75 75	70 70	1.00 1.00	75 75	36.50 36.50	34 34	1.00 1.00
Laundries, etc.....	M. 70 F. 50	1.00 55	— 21.60	65 65	70 70	1.00 1.00	75 75	36.50 36.50	34 34	1.00 1.00
Shops.....	M. 70 F. 50	1.00 —	— 21.60	75 75	70 70	1.00 1.00	75 75	36.50 36.50	34 34	1.00 1.00
Hotels, restaurants, etc.	M. 70 F. 50	1.00 21 ⁵	— 21.60	65 65	64 ⁴ 64	1.00 1.00	75 75	36.50 36.50	34 34	1.00 1.00
Beauty parlours.....	M. 70 F. 50	1.00 —	— 21.60	65 65	70 70	1.00 1.00	75 75	36.50 36.50	34 34	35 ⁶ 35 ⁶
Theatres and amusement places.	M. 70 F. 50	1.00 —	— 21.60	65 65	70 70	1.00 1.00	75 75	36.50 36.50	34 34	75 75
Offices.....	M. 70 F. 50	1.00 —	— 21.60	65 65	70 70	1.00 1.00	75 75	36.50 36.50	34 34	1.00 1.00

¹ In hotels and restaurants the rates apply to a maximum of 54 hours per week.² In beauty parlours,

theatres and amusement places the rates apply to a maximum of 44 hours in a week.

³ 80 cents per hour

for male workers in food processing plants.

⁴ Chauffeurs, watchmen, stationary engineers and firemen

70 cents; bell boys 56 cents.

⁵ Dollars per week for waitresses; \$16 for other restaurant workers.⁶ Dol-

lars per week.

Regulation of Wages and Hours of Work under Industrial Standards Legislation and the Quebec Collective Agreement Act.—Industrial Standards Acts are in effect in Nova Scotia, New Brunswick, Ontario and Saskatchewan and there are similar provisions in the Alberta Labour Act (Part IV). These provide that a schedule of wage rates and hours of work agreed upon by a representative group of employees and employers in an industry may, upon approval by the government, be given statutory effect by Order in Council, to become the minimum terms of employment for the entire industry in the area. This legislation applies only to certain trades and areas in the province concerned. It has been used fairly extensively in the building trades, the clothing industries, barbering and a few other industries. An advisory committee, usually equally representative of employers and employees, is established to assist in enforcing a schedule.

The Nova Scotia Act applies only to construction work in Halifax, Dartmouth and Sydney; 12 schedules of wages and hours for individual building trades were in force during the year ended Mar. 31, 1964. In New Brunswick, five schedules covering an individual building trade or group of such trades were in effect in the same period.

At the end of March 1964, there were 154 schedules in force under the Ontario Industrial Standards Act. Of these, 74 applied to the building trades, 69 to barbering and four to the retail gasoline service industry. Five schedules for the garment industries, one for the fur industry and one for hard furniture applied throughout the province.

In Saskatchewan, 18 schedules were in effect on Mar. 31, 1964, covering barbering, beauty culture, baking, carpentry, painting and the electrical trade. The schedule for barbering covered the whole province except the cities of Regina, Saskatoon, Moose Jaw and Prince Albert, for each of which a separate schedule was in effect. Each of the other schedules applied to a zone consisting of a city and its environs. In Alberta, 15 schedules were in force at the end of the year 1964. These governed, in one or more areas, certain building trades, dairy employees, garage and service station workers, and bakers and

bakery salesmen. In Manitoba, the Fair Wage Schedule for the construction industry sets a regular work week and hourly rates of wages for various classifications of workers. The schedule applies to private construction work in the larger centres of population as well as to public construction work throughout the province.

In the Province of Quebec, 99 decrees under the Collective Agreement Act were in force on Mar. 31, 1964, governing 36,803 employers and 254,967 employees. Of these, 17 applied to barbers and hairdressers, 16 to commercial establishments, 18 to the construction industry, 24 to manufacturing and 24 to other industries and services. Fourteen of the decrees had province-wide jurisdiction, governing the manufacture of women's clothing, dresses, hats and handbags, men's clothing, hats and shirts, the manufacture of shoes, leather gloves, furniture, corrugated paper boxes and caskets, the tanning industry and the building materials industry. The remaining decrees regulated an industry in a particular urban centre or region of the province. Each decree is enforced by a parity committee which has power to levy an assessment on employers and employees to obtain funds for the enforcement of the decree.

Section 2.—The Labour Force*

A current and periodic analysis of the state of employment in Canada was organized in 1945 to provide up-to-date and reliable information concerning the Canadian labour force. A labour force survey, on a sample basis, was conducted in November 1945 and quarterly surveys were carried out thereafter until November 1952, when the survey was placed on a monthly basis. A multi-stage area sample was used involving the selection of progressively smaller sample areas and ultimately of households. Random methods of choice were used at every stage of selection so that all members of the population had an equal chance of inclusion. The present sample covers more than 30,000 households throughout Canada. The estimates of the labour force are restricted to the civilian labour force. In addition to members of the Armed Forces, inmates of institutions and Indians living on reservations are excluded.

The labour force surveys provide a classification of persons 14 years of age or over on the basis of their activity during the week preceding the beginning of interviewing for the survey. The main divisions of the population are defined as follows:—

Labour Force.—The civilian labour force is composed of that portion of the civilian non-institutional population 14 years of age or over who, during the survey week, were employed or unemployed.

Employed.—The employed include all persons who, during the survey week: (a) did any work for pay or profit; (b) did any work which contributed to the running of a farm or business operated by a related member of the household; or (c) had a job but were not at work because of bad weather, illness, industrial dispute, or vacation, or because they were taking time off for other reasons. Persons who had jobs but did not work during the survey week and who also looked for work are included in the unemployed as persons without work and seeking work.

Unemployed.—The unemployed include all persons who, through the survey week: (a) were without work and seeking work, i.e., did no work during the survey week and were looking for work; or would have been looking for work except that they were temporarily ill, were on indefinite or prolonged layoff, or believed no suitable work was available in the community; or (b) were temporarily laid off for the full week, i.e., were waiting to be called back to a job from which they had been laid off for less than 30 days.

Not in the Labour Force.—Those not in the labour force include all civilians 14 years of age or over (exclusive of institutional population) who are not classified as employed or unemployed. This category includes those going to school, keeping house, too old or otherwise unable to work, and voluntarily idle or retired. Housewives, students and others who worked part time are classified as employed. If they looked for work they are classified as unemployed.

The estimates derived from the labour force surveys are subject to sampling error. In general, the percentage of error tends to decrease as the size of the estimate increases.

* Prepared in the Special Surveys Division, Dominion Bureau of Statistics.

The chances are about 19 out of 20 that the difference between the estimate and the figure which would have been obtained from a complete count is less than shown below. The sampling variabilities indicated are averages, since sampling error differs from characteristic to characteristic; in particular, for the unemployed the sampling variability is about 40 p.c. higher than the general average.

<i>Size of Estimate</i>	<i>Sampling Variability</i>
10,000.....	3,500
50,000.....	8,000
100,000.....	11,000
500,000.....	24,000
1,000,000.....	33,000
5,000,000.....	58,000
6,000,000.....	60,000

2.—Estimates of the Civilian Labour Force and its Main Components, Annual Averages, 1946 and 1955-64

NOTE.—Comparable figures for 1947-54 are given in the 1962 Year Book, p. 708. Figures do not include inmates of institutions and Indians on reservations.

Year	Civilian Popu- lation (14 years of age or over)	Civilian Labour Force (14 years of age or over)						Persons not in the Labour Force (14 years of age or over)	
		Employed					Unem- ployed		Total Labour Force
		Non-agriculture			Agi- culture	Total (em- ployed)			
		Paid Workers	Other	Total (non-agi- culture)					
	'000	'000	'000	'000	'000	'000	'000	'000	'000
1946 ¹	8,779	2,990	490	3,480	1,186	4,666	163	4,829	3,950
1955.....	10,597	4,027	519	4,546	819	5,364	245	5,610	4,987
1956.....	10,807	4,286	522	4,808	777	5,585	197	5,782	5,025
1957.....	11,123	4,442	540	4,983	748	5,731	278	6,008	5,115
1958.....	11,388	4,461	527	4,988	718	5,706	432	6,137	5,250
1959.....	11,605	4,624	546	5,170	700	5,870	372	6,242	5,363
1960.....	11,831	4,732	551	5,282	683	5,965	446	6,411	5,420
1961.....	12,053	4,799	575	5,374	681	6,055	466	6,521	5,531
1962.....	12,280	4,980	585	5,565	660	6,225	390	6,615	5,665
1963.....	12,536	5,138	588	5,726	649	6,375	374	6,748	5,787
1964.....	12,817	5,368	611	5,979	630	6,609	324	6,933	5,884

¹ Excludes Newfoundland.

Characteristics of the Civilian Labour Force, 1946-64.—The civilian non-institutional population averaged 12,817,000 in 1964 compared with 8,779,000 in 1946, an increase of 46.0 p.c., and during the same period the labour force rose by only 43.6 p.c. to 6,933,000. Thus, the proportion of the population 14 years of age or over in the labour force, which was 55.0 p.c. in 1946, dropped to 54.1 p.c. in 1964. Contributing to this decrease were such factors as shifts in the age composition of the population, the tendency for young people to remain in school until they are a little older and the tendency for older persons to retire at an earlier age. The effect of these factors was greater among men, whose rate of labour force participation dropped from 85.1 p.c. in 1946 to 78.1 p.c. in 1964. Although the growth in the female labour force was also affected by these factors, there was an offsetting development. From 1953 there was a rapid increase in job opportunities for women, particularly married women. The female participation rate dropped slightly from 24.7 p.c. in 1946 to 23.4 p.c. in 1953 and then rose to 30.5 p.c. in 1964. During the 1953-64 period, the participation rate for the female group 25-44 years of age rose from 23.1 p.c. to 31.7 p.c. and for the 45-64 age group from 17.2 p.c. to 31.6 p.c. In 1964, women

in the labour force numbered 1,972,000, about half of whom were married (excluding widowed, divorced and separated). Total employment in that year averaged 6,609,000, an increase of 41.6 p.c. over 1946. The number of men employed (4,698,000) was 30.2 p.c. higher and the number of women employed (1,911,000) was 80.8 p.c. higher.

Between 1946 and 1964, employment in agriculture dropped from 1,186,000 to 630,000, a decline of 46.9 p.c. On the other hand, employment in non-agricultural industries increased by 71.8 p.c. from 3,480,000 to 5,979,000 and the number of paid workers employed in non-agricultural industries rose by 79.5 p.c. from 2,990,000 to 5,368,000. Important changes also occurred in the distribution of employment among industries. In 1964, the goods-producing industries accounted for 44 p.c. and the service-producing industries for 56 p.c. of total employment compared with 60 p.c. and 40 p.c., respectively, in 1946. The most notable shift was in agriculture. In 1946, about one in four employed persons worked in agriculture whereas in 1964 the proportion was one in ten. The proportion employed was substantially higher in 1964 than in 1946 in trade and service industries. In all other non-agricultural industry groups the proportion employed was little changed. In 1964, almost one out of every two employed women worked in service industries as compared with one out of every three in 1946.

On an annual average basis, unemployment as a percentage of the labour force fluctuated widely during the period, ranging between 2.2 p.c. in 1947 and 7.1 p.c. in 1961; it averaged 4.7 p.c. in 1964. Throughout the period, unemployment rates were substantially lower for women than for men.

The number of persons 14 years of age or over not in the labour force averaged 5,884,000 in 1964 compared with 3,950,000 in 1946, an increase of 49 p.c. Housewives and students together constituted more than 80 p.c. of the total in the later year; the number of women keeping house increased by almost one third during the period and the number of students more than doubled.

3.—Percentage Distribution of the Population 14 Years of Age or Over in the Labour Force and Non-labour Force Categories, by Sex, 1946 and 1955-64

NOTE.—Comparable figures for 1947-54 are given in the 1962 Year Book, pp. 710-711.

Year	Popu- lation (14 years of age or over)	Percentage Distribution of the Population 14 Years of Age or Over							
		Labour Force				Not in Labour Force			
		Employed		Unem- ployed	Total	Women Keeping House	Persons Going to School	Other	Total
		Agri- culture	Non- agri- culture						
		MALES							
	'000	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
1946 ¹	4,400	23.4	58.6	3.1	85.1	...	5.5	9.4	14.8
1955.....	5,290	14.8	63.2	4.0	82.1	...	6.0	11.9	17.9
1956.....	5,398	13.7	65.4	3.2	82.2	...	6.2	11.6	17.8
1957.....	5,559	12.8	65.1	4.4	82.3	...	6.4	11.4	17.7
1958.....	5,684	11.7	63.3	6.6	81.7	...	6.8	11.6	18.4
1959.....	5,785	11.3	64.2	5.6	81.0	...	7.2	11.7	19.0
1960.....	5,890	10.7	63.4	6.6	80.7	...	7.5	11.7	19.3
1961.....	5,991	10.4	62.7	6.7	79.8	...	8.1	12.1	20.2
1962.....	6,094	9.8	63.8	5.4	79.1	...	8.6	12.3	20.9
1963.....	6,215	9.3	64.2	5.0	78.5	...	9.0	12.5	21.5
1964.....	6,351	8.8	65.1	4.2	78.1	...	9.5	12.4	21.9

¹ Excludes Newfoundland.

3.—Percentage Distribution of the Population 14 Years of Age or Over in the Labour Force and Non-labour Force Categories, by Sex, 1946 and 1955-64—concluded

Year	Popu- lation (14 years of age or over)	Percentage Distribution of the Population 14 Years of Age or Over							
		Labour Force				Not in Labour Force			
		Employed		Unem- ployed	Total	Women Keeping House	Persons Going to School	Other	Total
		Agri- culture	Non- agri- culture						
FEMALES									
	'000	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
1946 ¹	4,379	3.6	20.6	0.6	24.7	63.2	5.1	7.0	75.3
1955.....	5,306	0.7	22.6	0.6	23.9	66.0	5.5	4.6	76.1
1956.....	5,409	0.7	23.7	0.5	24.9	64.9	5.5	4.7	75.1
1957.....	5,564	0.7	24.5	0.6	25.8	63.9	5.7	4.5	74.2
1958.....	5,703	0.9	24.4	0.9	26.2	63.2	6.1	4.5	73.8
1959.....	5,820	0.8	25.1	0.8	26.7	62.4	6.4	4.5	73.3
1960.....	5,942	0.8	26.0	1.0	27.9	61.0	6.6	4.5	72.1
1961.....	6,061	1.0	26.6	1.1	28.7	59.9	6.9	4.5	71.3
1962.....	6,186	1.0	27.1	1.0	29.0	59.1	7.4	4.5	71.0
1963.....	6,320	1.1	27.5	1.0	29.6	58.1	7.9	4.4	70.4
1964.....	6,466	1.1	28.5	0.9	30.5	56.9	8.3	4.3	69.5

¹ Excludes Newfoundland.

4.—Percentage Distribution of the Employed by Industrial Group, 1946 and 1955-64

NOTE.—Comparable figures for 1947-54 are given in the 1962 Year Book, p. 711.

Year	Total Em- ployed	Percentage Distribution							
		Agri- culture	Other Primary Industries	Manu- facturing	Con- struction	Trans- portation and Other Utilities	Trade	Finance, Insurance and Real Estate	Service
		p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
1946 ^{1,2}	4,666	25.4	4.0	26.0	4.8	8.1	12.3	2.7	16.8
1955 ²	5,364	15.3	4.5	25.6	6.9	8.7	15.7	3.3	20.0
1956 ²	5,585	13.9	4.6	25.7	7.4	9.0	15.8	3.5	20.3
1957 ²	5,731	13.0	4.3	26.1	7.6	8.9	15.7	3.6	20.8
1958 ²	5,706	12.5	3.6	25.6	7.5	8.9	16.0	3.7	22.1
1959 ²	5,870	11.9	3.4	25.5	7.5	8.9	16.1	3.7	23.0
1960 ²	5,965	11.4	3.5	24.7	7.0	8.6	16.5	3.8	24.6
1961 ²	6,055	11.2	3.0	25.0	6.7	8.4	16.2	3.9	25.5
1961 ¹	6,055	11.2	3.0	24.0	6.2	9.3	16.9	3.9	25.3
1962 ²	6,225	10.6	2.9	24.1	6.3	9.4	16.9	4.0	25.8
1963 ²	6,375	10.2	2.8	24.3	6.4	9.4	16.7	4.0	26.3
1964 ²	6,609	9.5	3.0	25.0	6.2	8.9	16.7	4.0	26.7

¹ Excludes Newfoundland.

² Classified according to the 1948 Canadian standard industrial classification.

³ Classified according to the 1960 Canadian standard industrial classification.

Employment was substantially higher in 1964 than in 1946 in all regions. British Columbia experienced the largest increase of 55.1 p.c. followed by Ontario with 49.5 p.c., Quebec with 42.4 p.c., the Prairie region with 22.7 p.c. and the Atlantic region (excl. Newfoundland) with 9.4 p.c. In all regions, however, the increase in employment was not as great as the growth of the labour force and, as a consequence, there was a rise in unemployment. Unemployment in Canada averaged 324,000 in 1964, 4.7 p.c. of the labour

force. The unemployed were distributed regionally as follows: Quebec 38.3 p.c., Ontario 25.6 p.c., Atlantic 14.2 p.c., Prairie 11.4 p.c. and British Columbia 10.5 p.c. In 1946, the unemployed were distributed among the regions in just about the same proportions.

Similarly, unemployment rates were higher in 1964 than in 1946. In the later year the unemployed as a percentage of the labour force in each of the five regions was as follows: Atlantic 7.8 p.c., Quebec 6.4 p.c., British Columbia 5.3 p.c., Ontario 3.2 p.c., and Prairies 3.1 p.c. From 1946 on, unemployment rates for the Atlantic region and Quebec were consistently higher than the national average and for Ontario and the Prairie region they were consistently lower. The British Columbia rate was above the national average in every year except 1955 and 1956.

5.—Estimates of Employment and Unemployment, by Region, 1946 and 1955-64

NOTE.—Comparable figures for 1947-54 are given in the 1962 Year Book, p. 712.

Year	Atlantic		Quebec		Ontario		Prairies		British Columbia	
	Employment	Unemployment	Employment	Unemployment	Employment	Unemployment	Employment	Unemployment	Employment	Unemployment
	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000
1946 ¹	392	23	1,283	54	1,654	48	947	21	390	16
1955.....	478	33	1,493	98	1,993	66	939	30	462	18
1956.....	489	31	1,535	80	2,096	51	976	22	489	14
1957.....	492	45	1,576	101	2,161	77	992	27	509	27
1958.....	469	67	1,582	153	2,142	122	1,013	43	501	47
1959.....	482	59	1,620	138	2,198	103	1,049	35	521	36
1960.....	492	59	1,639	164	2,249	128	1,069	47	516	48
1961.....	507	64	1,652	168	2,269	132	1,100	53	527	49
1962.....	516	62	1,713	139	2,317	105	1,129	46	551	39
1963.....	522	55	1,762	142	2,382	94	1,138	44	571	39
1964.....	542	46	1,827	124	2,473	83	1,162	37	605	34

¹ Excludes Newfoundland.

Section 3.—Employment, Earnings and Hours*

Monthly records of employment have been collected from larger business establishments since 1921. At that time a survey was instituted to provide employment index numbers which would serve as current economic indicators. In 1941 the survey was extended to provide information on payrolls and per capita wages and salaries and in 1944 it was further extended to provide data on hours of work and hourly and weekly wages. During the war period also, separate records for men and women employees were established.

The survey covers firms that usually employ 15 or more persons in all sectors of the following major industrial divisions: forestry; mining; manufacturing; construction; transportation, storage and communication; public utility operation; trade; and finance, insurance and real estate. Also included are certain branches of the service industry, mainly hotels and restaurants, laundries and dry-cleaning plants, and recreational and business services. The survey excludes agriculture, public administration and community services such as health and education. The coverage corresponds closely, therefore, to the business sector of the economy. Since the survey does not cover small firms and excludes several industries, the employment records are published in the form of index numbers (1949 = 100).

The monthly employment statistics relate to the number of employees drawing pay in the last pay period in the month. Data are requested for all classes of employees with the exception of homeworkers and casual employees working less than one day in the pay period. Owners and firm members are also excluded. The respondents report the gross wages and salaries paid in the last pay period in the month, before deductions are

* Prepared in the Employment Section, Labour Division, Dominion Bureau of Statistics.

made for income tax, unemployment insurance, etc. The reported payrolls represent gross remuneration for services rendered and paid absences in the period specified, including salaries, commissions, piecework and time work payments, and such items as shift premiums, and regularly paid production, incentive and cost-of-living bonuses. The statistics on hours relate to the straight and overtime hours worked by those wage-earners for whom records of hours are maintained, and also to hours credited to wage-earners absent on paid leave during the reported period. If the reported period exceeds one week, the payroll and hours data are reduced to weekly equivalents.

Subsection 1.—Employment and Weekly Wages and Salaries

Following the end of the War, the composite index of employment (1949 = 100) showed successive gains each year, except for 1954, until 1957 when a peak of 122.6 was reached. For the next four years the index fluctuated some 3 to 4 p.c. below the 1957 point but in 1962 again moved upward. Successive increases carried it to a new record of 130.4 in 1964, more than 6 p.c. above the 1957 level.

The general recovery in employment started in the second quarter of 1961 and continued through 1964. Over the four-year period, the industrial composite rose by 10.4 p.c.; manufacturing increased 11.9 p.c., trade by 11.4 p.c., service by 24.0 p.c. and finance, insurance and real estate by 14.6 p.c. The increase in manufacturing was particularly significant in view of the fact that this industry accounts for over 40 p.c. of industrial employment as measured by the employment survey. Only mining actually declined in the four-year period, although forestry and transportation, storage and communication showed little improvement. Each of these three industry divisions is experiencing a long-term trend toward reduced levels of employment within particular areas or segments.

6.—Annual Average Index Numbers of Employment by Industrial Division, 1955-64, and Monthly Indexes 1964

NOTE.—These indexes are calculated as at the last pay period of each month, on the base 1949=100. Comparable averages for significant years 1921-54 are given in the 1963-64 Year Book, p. 717.

Year and Month	Forestry (chiefly logging)	Mining	Manufacturing	Construction	Transportation, Storage and Communication	Public Utility Operation	Trade	Finance, Insurance and Real Estate	Service ¹	Industrial Composite
Averages—										
1955.....	102.9	113.7	109.8	115.0	110.8	119.2	118.7	132.1	115.0	112.9
1956.....	113.2	122.7	115.8	131.8	118.3	126.3	126.3	137.1	125.1	120.7
1957.....	99.3	127.2	115.8	135.7	120.4	133.6	131.8	145.0	131.9	122.6
1958.....	75.9	123.5	109.8	126.2	115.5	137.6	131.6	149.3	135.1	117.9
1959.....	78.9	123.4	111.1	130.3	114.3	138.7	135.3	153.2	139.3	119.7
1960.....	84.0	120.1	109.5	125.7	111.1	137.8	136.7	156.7	143.2	118.7
1961.....	71.5	116.5	108.9	121.7	108.6	138.3	137.8	163.1	148.9	118.1
1962.....	70.9	116.4	113.3	124.3	108.3	141.6	140.6	170.1	156.5	121.5
1963.....	69.6*	114.4	116.4	124.0	109.2	144.0	146.0	178.9	166.7	124.6
1964.....	73.0	115.5	121.9	129.2	111.3	146.5	153.5	186.9	184.6	130.4
1964—										
January.....	70.1	112.7	117.0	108.8	105.6	139.2	147.0	183.4	167.6	123.3
February.....	61.1	113.3	117.7	105.8	105.4	139.5	145.7	183.4	170.3	123.0
March.....	46.8	109.1	118.4	107.7	106.0	139.8	148.4	184.0	172.4	123.5
April.....	37.7	111.7	118.6	114.4	108.6	141.5	148.1	184.3	175.7	124.6
May.....	61.6	114.8	121.4	129.1	111.3	146.7	150.2	185.0	183.5	129.1
June.....	83.0	119.7	124.2	139.5	114.3	151.4	152.7	186.5	190.6	133.4
July.....	89.8	121.7	122.6	145.7	116.2	153.6	152.2	187.1	195.1	134.0
August.....	88.5	118.4	126.4	148.9	116.4	153.5	153.6	190.4	200.8	136.4
September.....	92.1	116.3	126.3	146.7	115.4	150.9	157.0	189.9	193.5	136.2
October.....	88.0	116.6	123.6	146.2	113.3	149.1	159.1	189.2	191.0	134.7
November.....	86.0	116.5	124.4	137.8	112.5	147.7	163.7	189.5	189.2	134.7
December.....	71.6	115.5	121.9	120.1	110.8	144.8	164.4	189.4	185.4	131.2

¹ Consists mainly of hotels, restaurants, laundries, dry-cleaning establishments and recreational and business services.

7.—Annual Average Index Numbers of Employment, by Industrial Division and Group, 1959-64

NOTE.—These indexes are calculated as at the last pay period of each month, on the base 1949=100.

Industry	1959	1960	1961	1962	1963	1964
Forestry (chiefly logging).....	78.9	84.0	71.5	70.9	69.7	73.0
Mining.....	123.4	120.1	116.5	116.4	114.4	115.5
Metal mining.....	140.8	137.3	131.9	131.0	127.6	129.9
Gold.....	73.6	73.2	70.8	68.9	66.2	63.0
Other metal.....	203.5	197.0	188.8	188.8	184.7	192.1
Iron.....	236.8	268.9	254.5	278.6	285.3	302.2
Fuels.....	93.9	89.5	84.6	84.5	82.7	82.3
Coal.....	48.6	45.7	40.7	38.8	38.9	36.5
Oil and natural gas.....	278.8	277.8	273.5	272.7	261.1	267.8
Non-metal.....	131.9	132.2	139.7	144.1	147.5	148.2
Asbestos.....	166.1	173.8	179.9	183.5	181.4	174.7
Manufacturing.....	111.1	109.5	108.9	113.3	116.4	121.9
Durable goods.....	115.5	112.6	110.6	117.0	121.5	129.0
Non-durable goods.....	107.3	106.8	107.5	110.2	112.1	115.9
Food and beverages.....	114.6	114.4	114.2	116.3	116.7	119.0
Meat products.....	139.3	136.0	134.4	133.3	134.1	137.4
Dairy products.....	125.4	124.2	124.7	123.9	125.9	126.3
Canned and cured fish.....	113.1	109.7	114.8	124.4	125.1	125.6
Canned and preserved fruits and vegetables.....	110.3	112.4	109.4	120.7	120.4	126.0
Bread and other bakery products.....	103.8	102.9	101.1	98.5	94.5	96.3
Biscuits and crackers.....	109.9	111.2	110.4	111.5	111.8	113.2
Distilled and malt liquors.....	91.2	90.7	92.6	94.9	93.1	96.8
Other beverages.....	106.0	101.9	99.0	95.7	95.0	96.4
Confectionery.....	137.8	143.5	146.0	149.0	153.6	159.2
Tobacco and tobacco products.....	88.7	89.0	86.1	89.1	92.2	92.0
Rubber products.....	96.2	90.2	89.7	94.8	94.8	92.5
Leather products.....	106.2	101.0	98.9	105.8	110.3	117.9
Boots and shoes (except rubber).....	88.2	83.8	87.6	89.2	89.0	89.9
Other leather products.....	94.8	91.2	94.6	96.4	94.9	92.8
Textile products (except clothing).....	76.3	71.0	75.1	76.3	78.3	84.5
Cotton yarn and broad woven goods.....	78.8	77.1	78.3	81.4	85.1	90.3
Woollen goods.....	60.6	62.3	61.1	61.9	64.6	66.8
Synthetic textiles and silk.....	82.7	83.8	83.9	89.2	98.2	110.4
Clothing (textile and fur).....	92.4	89.9	90.5	92.7	95.4	100.1
Men's clothing.....	93.0	90.3	91.8	96.1	99.8	105.1
Women's clothing.....	97.2	96.4	99.1	99.7	103.4	111.0
Knit goods.....	78.4	73.1	72.0	73.8	74.2	77.0
Fur goods.....	70.0	66.2	64.8	62.0	60.5	57.2
Wood products.....	103.5	103.2	102.9	107.4	110.9	115.3
Saw and planing mills.....	103.6	104.4	105.2	109.3	113.7	118.1
Furniture.....	112.6	110.7	109.5	115.9	120.1	125.7
Other wood products.....	85.6	82.9	78.9	80.9	79.0	80.8
Paper products.....	123.2	124.0	123.7	125.9	127.4	132.2
Pulp and paper mills.....	124.2	125.3	124.7	125.9	127.4	131.9
Other paper products.....	121.0	120.8	121.4	125.8	127.3	132.9
Printing, publishing and allied industries.....	121.3	123.8	124.1	126.0	126.2	126.1
Iron and steel products.....	109.7	106.1	102.9	109.2	114.4	122.0
Agricultural implements.....	78.2	69.1	62.8	62.0	70.2	73.0
Boilers and plate work.....	117.4	114.5	110.5	119.7	122.6	116.4
Fabricated and structural steel.....	163.0	153.3	148.4	155.3	148.2	159.2
Hardware and tools.....	99.5	100.0	100.4	108.1	115.5	126.9
Heating and cooking appliances.....	106.1	96.7	95.9	104.3	104.5	111.0
Iron castings.....	99.8	91.8	90.1	94.6	101.0	108.6
Machinery manufactures.....	107.1	105.8	104.2	111.3	117.2	125.5
Industrial machinery.....	116.6	116.1	114.8	126.1	134.7	145.9
Primary iron and steel.....	119.8	120.3	116.6	124.0	131.0	143.2
Sheet metal products.....	110.3	107.8	104.6	114.8	117.7	121.9
Wire and wire products.....	118.3	116.3	109.9	111.3	116.8	127.1
Transportation equipment.....	112.3	106.8	105.0	111.1	115.5	126.8
Aircraft and parts.....	263.6	243.4	258.9	251.4	232.1	253.7
Motor vehicles.....	106.0	104.3	99.7	107.5	122.6	139.3
Motor vehicle parts and accessories.....	107.1	103.6	102.8	113.0	131.5	155.0
Railway and rolling-stock equipment.....	68.5	61.6	55.4	56.4	54.2	69.7
Shipbuilding and repairing.....	128.3	126.1	126.1	144.8	146.9	139.8
Non-ferrous metal products.....	126.3	129.2	124.3	124.8	126.3	133.1
Aluminum products.....	139.4	143.5	138.7	140.4	142.5	146.0
Brass and copper products.....	110.4	103.0	102.7	103.7	108.2	116.3
Smelting and refining.....	141.6	151.6	142.2	138.6	136.8	143.8

7.—Annual Average Index Numbers of Employment, by Industrial Division and Group, 1959-64—concluded

Industry	1959	1960	1961	1962	1963	1964
Manufacturing—concluded						
Electrical apparatus and supplies.....	135.8	133.1	132.9	148.1	154.7	160.9
Heavy electrical machinery.....	111.8	105.4	99.4	109.0	115.6	120.2
Telecommunication equipment.....	210.5	214.3	228.1	268.7	280.8	282.3
Non-metallic mineral products.....	143.1	140.0	138.2	146.7	150.6	158.0
Clay products.....	101.8	89.8	85.8	90.0	86.3	90.7
Glass and glass products.....	149.3	151.0	155.3	158.3	172.6	177.3
Concrete products.....	..	249.2	232.9	256.5	271.9	304.4
Products of petroleum and coal.....	138.5	137.5	137.0	139.3	139.9	142.2
Petroleum refining.....	140.7	140.3	139.9	141.8	142.4	145.1
Chemical products.....	129.4	132.3	131.4	132.6	135.4	139.7
Medicinal and pharmaceutical preparations..	119.2	118.0	119.2	122.6	124.6	128.5
Acids, alkalis and salts.....	145.5	155.3	154.9	152.4	157.2	157.9
Other chemical products.....	128.4	130.8	129.3	130.7	132.9	138.1
Miscellaneous manufacturing industries.....	126.5	130.3	137.8	145.2	152.9	163.3
Construction.....	130.3	125.7	121.7	124.3	124.0	129.2
Building and general engineering.....	129.0	121.9	117.7	121.8	123.0	130.0
Building.....	136.5	128.6	122.4	127.9	129.4	138.2
General engineering.....	98.0	94.0	97.9	97.3	97.5	97.3
Highways, bridges and streets.....	132.3	132.0	128.5	128.6	125.7	127.8
Transportation, Storage and Communication	114.3	111.1	108.6	108.4	109.2	111.3
Transportation.....	104.5	101.4	99.2	98.8	98.7	100.5
Air transport and airports.....	192.9	211.4	219.5	221.8	217.7	221.8
Steam railways.....	95.6	89.5	85.0	83.2	81.1	81.2
Maintenance of equipment.....	87.0	77.8	74.8	73.9	70.7	73.0
Maintenance of ways and structures.....	93.9	84.8	79.1	74.2	72.7	72.3
Transportation—steam railways.....	96.0	91.7	87.3	86.3	84.3	84.3
Telegraphs.....	121.9	117.9	114.1	115.6	112.9	110.2
Water transportation.....	94.6	92.7	90.2	90.5	90.7	94.0
Electric and motor transportation.....	129.3	132.3	135.6	137.9	144.6	149.9
Urban and interurban transportation.....	82.3	82.0	80.9	79.1	80.5	82.4
Truck transportation.....	211.6	216.9	220.8	222.1	234.8	246.8
Storage.....	114.4	108.6	106.3	102.4	106.0	109.3
Grain elevators.....	103.2	100.1	97.5	92.4	95.8	100.7
Storage and warehouses.....	147.0	133.4	132.3	131.9	134.9	134.0
Communication.....	166.5	163.8	160.1	162.0	165.8	170.6
Radio broadcasting.....	319.6	339.6	357.1	372.7	392.6	406.4
Telephone.....	148.3	143.6	138.5	139.5	145.4	146.7
Public Utility Operation.....	138.7	137.8	138.3	141.6	144.0	146.5
Electric light and power.....	135.5	134.9	136.1	138.2	139.8	142.2
Other public utilities.....	152.0	149.3	146.5	154.0	160.1	162.5
Trade.....	135.3	136.7	137.8	140.6	146.0	153.5
Wholesale.....	134.8	136.1	136.1	139.5	144.2	150.7
Retail.....	135.6	137.1	138.7	141.3	147.1	155.1
Food.....	178.8	189.1	194.7	197.4	204.4	223.1
Department stores.....	117.4	118.8	121.4	122.9	127.8	133.9
Variety stores.....	129.2	129.7	131.2	128.8	130.8	141.3
Automotive products.....	164.9	166.1	163.1	170.9	185.2	198.1
Finance, Insurance and Real Estate.....	153.2	156.7	163.1	170.1	178.9	186.9
Banking, investment and loan.....	153.6	157.5	164.1	171.6	181.5	191.4
Insurance.....	149.7	152.4	157.3	162.3	168.3	171.8
Service.....	139.3	143.2	148.9	156.5	166.7	184.6
Hotels and restaurants.....	128.6	130.1	129.9	135.0	143.7	157.8
Laundries and dry-cleaning plants.....	113.3	114.1	122.0	130.3	138.2	157.4
Business service.....	245.9	246.1	263.9	282.8	305.5	333.8
Industrial Composite.....	119.7	118.7	118.1	121.5	121.6	130.4

8.—Annual Average Index Numbers of Employment, by Province, 1955-64, and Monthly Indexes 1964

NOTE.—These indexes are calculated as at the last pay period of each month, on the base 1949=100. Comparable averages for significant years 1939-54 are given in the 1963-64 Year Book, p. 720.

Year and Month	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Canada
Averages—											
1955.....	131.1	114.2	97.1	103.5	112.5	113.5	105.2	117.0	133.0	111.9	112.9
1956.....	136.9	117.4	101.7	110.1	120.1	121.4	108.6	121.1	148.5	121.5	120.7
1957.....	130.1	115.2	100.2	103.8	121.5	124.3	110.9	125.3	152.2	123.9	122.6
1958.....	122.6	114.9	95.5	98.0	117.0	119.6	108.7	126.6	150.5	114.7	117.9
1959.....	125.8	126.3	96.3	101.7	118.5	121.3	112.2	130.0	155.0	115.1	119.7
1960.....	129.7	128.5	95.5	103.4	118.6	119.2	111.0	126.0	153.3	114.7	118.7
1961.....	131.7	130.7	94.0	103.9	118.3	118.7	110.0	123.1	154.2	112.3	118.1
1962.....	133.2	135.8	94.4	103.8	121.6	123.0	111.1	124.6	158.1	115.7	121.4
1963.....	135.9	132.1	95.3	104.9	124.4	126.9	112.9	127.9	160.3	119.9	124.6
1964.....	143.2	136.1	98.0	109.7	130.2	133.1	116.2	132.3	167.4	125.4	130.4
1964—											
January.....	126.0	117.8	94.8	104.2	122.5	126.8	111.6	121.3	158.0	118.0	123.3
February.....	126.1	109.7	94.5	104.6	121.6	126.9	110.2	120.2	157.9	118.0	123.0
March.....	123.7	111.0	89.1	101.1	122.6	128.0	110.3	121.6	157.7	118.7	123.5
April.....	127.8	118.2	93.0	97.1	123.9	129.0	111.3	125.4	156.4	119.6	124.6
May.....	138.8	141.2	96.6	107.3	129.0	132.1	116.0	133.5	164.5	123.1	129.1
June.....	157.4	145.9	100.2	114.5	133.5	135.6	119.2	139.1	172.1	126.5	133.4
July.....	161.6	149.3	102.3	115.2	134.6	133.8	121.3	141.0	176.6	131.9	134.0
August.....	158.9	159.5	102.5	118.9	136.6	137.7	119.9	141.0	177.7	133.8	136.4
September.....	157.2	156.3	101.2	117.7	136.6	138.1	120.3	139.6	175.7	131.9	136.2
October.....	152.8	151.4	101.1	114.4	136.0	136.2	120.0	138.8	173.2	129.3	134.7
November.....	150.6	147.1	101.3	112.7	134.8	138.0	118.4	135.7	171.4	128.8	134.7
December.....	137.3	126.4	99.7	109.6	130.5	135.2	116.1	130.7	167.8	124.9	131.2

9.—Annual Average Index Numbers of Employment, by Metropolitan Area, 1955-64, and Monthly Indexes 1964

NOTE.—These indexes are calculated as at the last pay period of each month, on the base 1949=100. Comparable averages for significant years 1939-54 are given in the 1963-64 Year Book, p. 720.

Year and Month	Montreal	Quebec	Toronto	Ottawa-Hull	Hamilton	Windsor	Winnipeg	Vancouver
Averages—								
1955.....	113.4	108.0	121.6	114.0	106.4	103.4	104.6	107.9
1956.....	120.2	111.0	128.3	119.6	113.8	104.9	106.8	117.4
1957.....	124.6	110.8	132.1	120.3	114.4	95.9	107.7	120.4
1958.....	121.5	108.1	131.0	121.2	105.0	78.6	107.5	114.8
1959.....	123.3	110.4	131.3	124.9	112.0	79.3	111.3	116.0
1960.....	123.1	110.4	129.9	124.2	111.3	76.2	111.4	113.8
1961.....	123.3	113.3	131.8	127.9	108.1	72.8	110.3	111.3
1962.....	126.9	120.0	137.3	133.8	113.2	72.1	110.6	114.2
1963.....	129.4	125.6	142.0	136.8	118.0	77.3	113.5	119.3
1964.....	135.7	129.3	149.0	142.0	125.5	86.2	118.3	126.6
1964—								
January.....	129.2	121.5	142.5	134.7	118.0	81.8	113.9	120.1
February.....	129.4	121.1	143.0	134.8	118.7	81.7	112.9	120.6
March.....	131.0	123.1	144.1	136.1	120.4	81.9	113.2	121.8
April.....	132.8	126.6	144.9	137.8	122.3	83.7	114.0	121.7
May.....	135.1	128.1	147.4	142.5	125.5	85.4	117.7	125.9
June.....	136.9	131.4	151.0	144.5	127.8	86.8	120.5	128.4
July.....	136.7	131.7	149.6	144.8	127.0	76.2	121.1	130.2
August.....	138.9	134.0	152.4	147.6	128.3	89.1	121.6	132.1
September.....	139.9	135.1	152.8	145.7	129.7	91.2	121.6	131.0
October.....	140.0	134.6	153.8	146.3	129.4	91.9	122.0	129.0
November.....	140.2	133.9	154.9	145.5	130.9	92.8	121.3	130.1
December.....	137.6	129.8	151.4	142.9	127.5	91.2	119.5	128.3

Average weekly wages and salaries have increased substantially in the years for which current payroll statistics have been collected, rising from \$23.44 in 1939 to \$86.68 in 1964. Following the relaxation of wartime wage restrictions in 1946 and the progressive lifting of price controls, the upward movement in per capita earnings gained momentum and average annual increases from 1946 to 1952 were more than twice as great as those between 1939 and 1946. After 1952 the rate of increase in per capita earnings, in terms of year-to-year percentage changes, fell slightly below that recorded during the war years. This slowdown was most pronounced between 1959 and 1962, during which time average earnings rose at rates of about 3 p.c. per annum. Over the next two years the rate increased moderately and earnings in 1964 were 3.9 p.c. higher than in 1963.

10.—Annual Index Numbers of Employment and Payrolls, with Average Weekly Wages and Salaries, by Industry, Province and Urban Area, 1962-64

Industry, Province and Urban Area	Employment (1949=100)			Payrolls (1949=100)			Average Weekly Wages and Salaries		
	1962	1963	1964	1962	1963	1964	1962	1963	1964
							\$	\$	\$
Industry									
Forestry (chiefly logging).....	70.9	69.6 ^r	73.0	145.7	150.2 ^r	149.4	83.45	88.62 ^r	94.15
Mining.....	116.4	114.4	115.5	228.1	227.0	237.6	98.82	102.37	106.06
Manufacturing.....	113.3	116.4	121.9	217.4	231.4	252.1	83.17	86.24	89.73
Durable goods ¹	117.0	121.5	129.0	225.0	242.2	267.5	89.80	93.20	96.89
Non-durable goods ¹	110.2	112.1	115.9	210.2	221.0	237.2	77.23	79.93	83.05
Construction.....	124.3	124.0	129.2	257.5	269.4	295.2	85.90	90.32	95.00
Transportation, storage and communication.....	108.4	109.2	111.3	200.8	209.9	222.5	88.98	92.29	95.94
Public utility operation.....	141.6	144.0	146.5	262.2	312.1	325.8	97.49	102.25	106.09
Trade.....	140.6	146.0	153.5	258.9	277.3	301.4	69.18	71.38	73.70
Finance, insurance and real estate.....	170.1	178.9	186.9	303.1	328.1	361.8	76.37	78.66	83.02
Service.....	156.5	166.7	184.6	297.7	325.8	373.3	57.23	58.88	61.19
Industrial Composite.....	121.5	124.6	130.4	229.8	243.9^r	265.2	80.59	83.43^r	86.68
Province									
Newfoundland.....	133.2	135.9	143.2	258.5	272.3	297.5	73.12	75.78	78.53
Prince Edward Island.....	135.8	132.1	136.1	246.6	252.6	246.8	58.10	60.07	61.67
Nova Scotia.....	94.4	95.3	98.0	168.7	175.5	186.6	66.73	68.46	70.78
New Brunswick.....	103.8	104.9	109.7	181.1	190.4	207.4	66.72	68.45	71.30
Quebec.....	121.7	124.4	130.2	232.5	246.0	266.1	78.14	81.03	84.51
Ontario.....	123.0	126.9	133.1	233.2	248.9	271.2	80.00	86.59	89.93
Manitoba.....	111.1	112.9	116.2	196.7	208.4	218.6	75.32	77.56	79.03
Saskatchewan.....	124.6	127.9	132.3	230.7	243.7	259.0	77.81	79.38	81.47
Alberta (including Northwest Territories).....	158.1	160.3	167.4	292.9	304.0	327.3	82.01	84.12	86.70
British Columbia (including Yukon Territory).....	115.7	119.9	125.4	223.2	239.4	241.4	87.44	90.52	94.50
Urban Area									
St. John's, Nfld.....	141.2	147.0	151.4	267.1	291.3	312.0	60.48	63.46	65.99
Sydney, N.S.....	76.5	80.9	75.1	129.8	143.2	137.9	78.81	82.82	84.22
Halifax, N.S.....	124.9	124.3	128.5	233.3	245.2	262.9	87.46	70.48	73.11
Moncton, N.B.....	107.6	104.7	111.0	188.8	184.0	206.6	61.66	63.84	67.63
Saint John, N.B.....	109.6	110.4	107.5	202.0	214.7	214.3	65.59	69.13	71.55
Chicoutimi-Jonquière, Que.....	107.7	110.4	118.1	215.1	224.3	245.1	69.23	100.65	108.10
Quebec, Que.....	120.0	125.6	130.3	239.8	255.5	270.6	68.84	72.09	74.31
Sherbrooke, Que.....	108.9	112.9	119.5	203.5	218.4	242.5	87.37	70.21	73.68
Shawinigan, Que.....	94.8	98.8	104.0	181.1	196.5	213.8	87.74	91.82	91.10
Trois-Rivières, Que.....	115.1	117.7	124.0	206.5	219.9	241.6	74.55	76.99	79.61
Drummondville, Que.....	73.3	87.3	96.3	137.6	159.3	178.0	66.08	68.15	69.43
Montreal, Que.....	126.9	129.4	135.7	242.7	255.6	279.7	79.82	82.45	86.07
Ottawa, Ont.-Hull, Que.....	133.8	136.8	142.0	256.2	269.4	261.4	75.18	77.20	80.51
Kingston, Ont.....	116.8	123.5	135.3	232.4	235.0	245.2	78.69	81.81	86.52
Peterborough, Ont.....	95.1	100.2	107.8	192.3	208.9	226.7	80.78	92.54	94.60
Oshawa, Ont.....	178.8	196.9	213.9	355.4	411.1	456.7	99.01	104.50	106.82

For footnote, see end of table, p. 736.

10.—Annual Index Numbers of Employment and Payrolls, with Average Weekly Wages and Salaries, by Industry, Province and Urban Area, 1962-64—concluded

Urban Area	Employment (1949=100)			Payrolls (1949=100)			Average Weekly Wages and Salaries		
	1962	1963	1964	1962	1963	1964	1962	1963	1964
Urban Area—concluded							\$	\$	\$
Toronto, Ont.....	137.3	142.0	149.0	261.4	280.0	304.8	84.10	87.14	90.45
Hamilton, Ont.....	113.2	118.0	125.5	219.1	233.0	257.0	89.68	91.55	95.01
St. Catharines, Ont.....	111.1	114.6	124.6	211.0	225.3	259.6	92.60	95.83	101.55
Niagara Falls, Ont.....	100.0	101.8	107.2	185.2	191.9	209.7	81.93	82.38	86.36
Brantford, Ont.....	83.5	89.1	93.6	143.9	162.3	176.9	75.46	79.96	82.92
Guelph, Ont.....	124.4	130.4	135.8	232.1	248.9	270.3	75.08	76.97	80.34
Galt, Ont.....	114.5	122.0	130.8	213.4	235.9	263.1	72.20	74.68	77.63
Kitchener, Ont.....	130.9	141.0	148.4	245.2	268.6	293.3	75.99	77.28	80.25
Sudbury, Ont.....	140.0	125.7	134.1	246.0	225.5	248.1	92.43	94.35	97.24
Timmins, Ont.....	89.0	88.3	86.3	139.2	140.4	142.5	73.40	74.55	77.44
London, Ont.....	135.9	141.8	147.7	258.0	277.6	303.4	76.46	78.85	82.92
Sarnia, Ont.....	128.9	133.3	135.7	279.8	298.4	313.5	104.28	107.74	111.14
Windsor, Ont.....	72.1	77.3	86.2	130.3	147.0	174.2	90.44	95.12	101.08
Sault Ste. Marie, Ont.....	145.4	150.0	157.2	293.3	337.1	333.2	101.50	112.99	106.48
Fort William-Port Arthur, Ont....	105.6	109.1	114.2	192.7	203.8	220.2	81.31	83.45	86.27
Winnipeg, Man.....	110.6	113.5	118.3	203.1	213.9	229.2	72.25	74.11	76.19
Regina, Sask.....	139.9	146.7	154.6	273.5	295.5	319.4	75.90	78.03	80.04
Saskatoon, Sask.....	138.2	143.3	153.0	265.7	281.8	311.2	71.89	73.42	75.86
Edmonton, Alta.....	201.6	205.5	216.7	379.5	396.5	427.9	76.71	78.73	80.52
Calgary, Alta.....	178.6	180.1	190.4	339.9	351.7	386.4	80.77	82.98	86.28
Vancouver, B.C.....	114.2	119.3	126.6	225.0	243.5	269.6	85.80	88.86	92.72
Victoria, B.C.....	116.7	119.7	122.0	224.0	237.4	245.4	79.68	82.32	83.22

¹ The durable goods group includes wood products, iron and steel products, transportation equipment, non-ferrous metal products, electrical apparatus and supplies, and non-metallic mineral products; the non-durable goods group includes all other manufacturing industries.

11.—Annual Average Weekly Wages and Salaries, by Industrial Division, 1955-64, and Monthly Averages 1964

NOTE.—Comparable averages for significant years 1939-54 are given in the 1963-64 Year Book, p. 722.

Year and Month	Forestry (chiefly logging)	Mining	Manu- facturing	Con- struction	Trans- portation, Storage and Communi- cation	Public Utility Operation	Trade	Finance, Insur- ance and Real Estate	Service ¹	Indus- trial Compos- ite
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
Averages—										
1955.....	60.62	73.53	63.48	62.11	64.56	70.80	52.42	56.79	40.71	61.05
1956.....	65.40	78.01	66.71	68.58	67.29	74.39	54.64	60.29	42.93	64.44
1957.....	69.38	83.89	69.94	73.63	71.20	78.99	57.51	63.36	45.77	67.93
1958.....	71.74	86.60	72.67	74.54	74.72	83.85	60.20	66.40	48.23	70.43
1959.....	71.63	90.76	75.84	76.55	79.65	88.08	63.12	68.82	50.27	73.47
1960.....	74.85	93.80	78.19	80.46	82.32	91.52	65.19	70.83	53.08	75.83
1961.....	80.43	95.90	80.73	82.57	85.87	94.52	67.05	73.92	55.38	78.17
1962.....	83.85	98.82	83.17	85.90	88.98	97.49	69.18	76.37	57.23	80.59
1963.....	88.62 [*]	102.37	86.24	90.32	92.29	102.26	71.38	78.66	58.88	83.41
1964.....	94.15	106.06	89.73	95.00	95.94	106.09	73.70	83.02	61.19	86.68
1964—										
January.....	85.00	105.99	88.83	92.57	93.27	104.53	72.39	79.67	60.10	85.10
February.....	84.80	106.14	88.98	94.51	94.49	104.97	72.90	79.94	60.56	85.74
March.....	97.66	107.50	88.82	88.65	94.13	105.35	72.95	81.20	60.67	85.27
April.....	96.73	105.08	89.66	93.62	94.97	105.48	73.79	82.62	61.08	86.33
May.....	90.80	104.98	90.05	95.68	95.54	105.27	74.10	82.39	61.11	86.80
June.....	89.11	105.18	89.73	93.98	95.50	106.71	74.48	82.60	60.71	86.62
July.....	93.43	105.92	89.11	96.45	95.44	104.44	74.86	82.67	61.01	86.76
August.....	95.28	104.09	89.65	97.56	96.95	105.44	74.37	84.59	60.69	87.19
September.....	95.46	106.24	91.01	99.07	97.39	106.79	73.73	84.33	61.39	88.00
October.....	100.25	108.31	91.15	100.14	98.25	107.76	73.92	85.06	61.92	88.47
November.....	98.59	108.89	90.91	98.52	97.69	107.98	73.30	85.20	62.29	87.94
December.....	92.28	104.55	88.65	85.04	97.23	108.18	73.54	86.00	62.48	85.53

¹ Mainly hotels, restaurants, laundries, dry-cleaning establishments and recreational and business services.

Subsection 2.—Hours and Earnings of Hourly Rated Wage-Earners

Since 1945, the monthly survey of employment and payrolls has covered statistics of hours of work and paid absence of those wage-earners for whom records of hours are maintained, together with the corresponding totals of gross wages paid. These wage-earners are mainly hourly rated production workers; information on hours is frequently not kept by employers for ancillary workers, nor in many industries and establishments, for any wage-earners. Salaried employees are excluded by definition from the series. As a result of these exclusions, data are available for fewer industries and workers than are covered in the employment and average weekly wage and salary statistics.

During the ten-year period 1955-64, there was little change in average weekly hours but average hourly and weekly wages rose substantially. For the most part, upward wage-rate revisions in all industries were responsible for the increases. Technological changes, which in many cases involve the employment of more highly skilled workers at the expense of those in the lower-paid occupations, also contributed to the advance of average hourly earnings. From 1955 to 1964, average weekly wages rose 39.4 p.c. in manufacturing, 40.1 p.c. in mining and 52.9 p.c. in building and general engineering. Average hourly earnings increased 39.3 p.c. in manufacturing, 43.5 p.c. in mining and 50.9 p.c. in building and general engineering. In manufacturing, 1964 average hourly earnings of \$2.02 and average weekly wages of \$82.90 represented increases of 3.6 p.c. and 4.4 p.c., respectively, over the 1963 levels.

12.—Annual Average Weekly Hours and Earnings of Hourly Rated Wage-Earners in Specified Industries, 1955-64, and Monthly Averages 1964

Year	All Manufactures			Mining			Building and General Engineering		
	Average Weekly Hours	Average Hourly Earnings	Average Weekly Wages	Average Weekly Hours	Average Hourly Earnings	Average Weekly Wages	Average Weekly Hours	Average Hourly Earnings	Average Weekly Wages
	No.	\$	\$	No.	\$	\$	No.	\$	\$
Averages—									
1955.....	41.0	1.45	59.45	43.2	1.61	69.68	39.5	1.63	64.46
1956.....	41.0	1.52	62.40	42.8	1.73	73.92	41.0	1.77	72.73
1957.....	40.4	1.61	64.96	42.3	1.88	79.35	41.3	1.90	78.47
1958.....	40.2	1.66	66.77	41.5	1.96	81.30	40.5	1.94	78.37
1959.....	40.7	1.72	70.16	41.5	2.04	84.80	39.6	2.01	79.59
1960.....	40.4	1.78	71.96	41.7	2.09	87.26	40.1	2.12	84.85
1961.....	40.6	1.83	74.27	41.8	2.13	89.08	39.9	2.17	86.39
1962.....	40.7	1.88	76.55	41.7	2.18	91.22	39.7	2.25	89.37
1963.....	40.8	1.95	79.40	42.0	2.24	94.12	40.0	2.34	93.64
1964.....	41.0	2.02	82.90	42.2	2.31	97.61	40.1	2.46	98.55
1964—									
January.....	41.2	1.99	81.99	42.9	2.27	97.38	39.6	2.42	96.03
February.....	41.2	1.99	82.03	42.5	2.28	97.17	40.5	2.43	98.37
March.....	40.7	2.01	81.84	42.4	2.34	99.07	36.6	2.43	88.82
April.....	41.1	2.01	82.75	42.0	2.29	96.05	40.0	2.44	97.38
May.....	41.4	2.02	83.55	42.0	2.30	96.55	41.1	2.43	99.62
June.....	41.2	2.02	83.22	42.3	2.30	97.04	39.9	2.43	96.83
July.....	40.9	2.00	82.05	42.6	2.31	98.25	41.4	2.44	100.95
August.....	41.3	2.02	83.31	41.6	2.30	95.53	41.8	2.45	102.20
September....	41.7	2.03	84.77	42.7	2.31	98.64	42.2	2.48	104.61
October.....	41.6	2.03	84.35	43.0	2.33	100.29	42.4	2.52	106.73
November....	41.2	2.04	84.04	43.0	2.34	100.68	41.2	2.52	103.83
December....	38.8	2.08	80.65	39.9	2.37	94.59	32.1	2.51	80.65

13.—Average Weekly Hours and Earnings of Hourly Rated Wage-Earners in Specified Industries and Urban Areas, 1962-64

Industry, Province and Urban Area	Average Weekly Hours			Average Hourly Earnings			Average Weekly Wages		
	1962	1963	1964	1962	1963	1964	1962	1963	1964
	No.	No.	No.	\$	\$	\$	\$	\$	\$
Industry									
Mining	41.7	42.0	42.2	2.18	2.24	2.31	91.22	94.12	97.61
Metal mining.....	41.9	41.9	42.1	2.26	2.31	2.38	94.43	96.92	100.22
Coal mining.....	40.3	42.6	42.2	1.83	1.86	1.92	73.82	79.26	80.84
Manufacturing	40.7	40.8	41.0	1.88	1.95	2.02	76.55	79.40	82.90
Durable goods ¹	41.2	41.3	41.6	2.04	2.11	2.19	84.02	87.25	91.08
Non-durable goods ¹	40.2	40.3	40.5	1.73	1.79	1.85	69.55	71.90	74.91
Construction	40.3	40.8	41.0	2.06	2.14	2.25	83.16	87.51	92.31
Building and general engineering.....	39.7	40.0	40.1	2.25	2.34	2.46	89.37	93.64	98.55
Highways, bridges and streets..	41.5	42.3	42.8	1.73	1.79	1.86	71.65	75.80	79.71
Service	38.1	37.7	37.1	1.10	1.15	1.21	42.02	43.21	44.73
Hotels and restaurants.....	38.0	37.4	36.6	1.06	1.11	1.17	40.41	41.53	42.74
Laundries and dry-cleaning plants.....	39.9	39.9	40.0	1.05	1.08	1.15	41.95	43.27	45.81
Province									
Newfoundland.....	39.8	40.4	40.3	1.69	1.69	1.76	67.77	68.19	70.78
Nova Scotia.....	40.4	40.5	41.1	1.64	1.69	1.75	66.20	68.30	71.97
New Brunswick.....	40.9	41.0	41.3	1.62	1.65	1.71	66.09	67.65	70.52
Quebec.....	41.5	41.5	41.8	1.70	1.75	1.81	70.39	72.69	75.81
Ontario.....	40.8	40.9	41.2	1.98	2.05	2.13	80.62	83.84	87.61
Manitoba.....	39.8	40.0	40.3	1.76	1.80	1.83	70.01	72.23	73.96
Saskatchewan.....	38.8	38.8	39.2	2.00	2.04	2.09	77.70	78.99	82.07
Alberta.....	39.8	39.7	40.1	1.99	2.02	2.08	79.29	80.28	83.30
British Columbia.....	37.7	37.8	37.9	2.28	2.37	2.47	86.04	89.69	93.68
Urban Area									
Montreal.....	40.7	40.6	41.0	1.75	1.81	1.87	71.35	73.33	76.64
Toronto.....	40.5	40.6	41.0	1.89	1.96	2.04	76.65	79.60	83.49
Hamilton.....	40.3	40.2	40.6	2.27	2.32	2.40	91.29	93.22	97.49
Windsor.....	41.2	42.6	42.8	2.29	2.39	2.52	94.14	102.04	107.74
Winnipeg.....	39.7	39.9	40.3	1.76	1.80	1.83	69.79	71.73	73.77
Vancouver.....	37.4	37.7	37.7	2.23	2.31	2.41	83.31	87.28	90.76

¹ The durable goods group includes wood products, iron and steel products, transportation equipment, non-ferrous metal products, electrical apparatus and supplies, and non-metallic mineral products; the non-durable goods group includes all other manufacturing industries.

Section 4.—Wage Rates, Hours of Labour and Other Working Conditions

Statistics on occupational wage rates by industry and locality, with standard weekly hours of labour, are compiled by the federal Department of Labour and published in the annual report *Wage Rates, Salaries and Hours of Labour*.

The statistics published are based on an annual survey covering some 28,000 establishments in most industries and apply to the last normal pay period preceding Oct. 1. Average wage rates of time workers and average straight-time earnings of piece workers and other incentive workers in a given occupation are given separately in the report but are combined in the calculation of industry index numbers shown in Table 14. Predominant ranges of rates for each occupation used are also given; overtime pay is excluded.

The index numbers of Table 14 measure changes in wage rates for non-office employees below the rank of foreman. They do not, however, provide a basis for comparing the level of wages in one industry with that in another. Information on concepts and methods of developing these statistics is given in the annual report.

14.—Index Numbers of Average Wage Rates for Certain Main Industrial Groups, 1955-64 (1949=100)

NOTE. Indexes back to 1901 may be obtained from the Department of Labour publication *Wage Rates, Salaries and Hours of Labour 1962*.

Year	Log- ging	Coal Mining	Metal Mining	Manufacturing			Con- struc- tion	Rail- ways	Tele- phone	Per- sonal Service	General Average
				Dur- able Goods	Non- durable Goods	All Manu- factur- ing					
1955.....	138.2	122.8	140.3	143.7	140.7	142.2	145.4	137.8	152.8	132.3	141.7
1956.....	160.8	123.6	150.8	151.2	148.3	149.8	150.7	146.8	157.6	136.1	148.7
1957.....	168.4	137.4	156.2	160.7	156.3	158.6	160.7	153.3	165.9	138.9	156.5
1958.....	172.0	147.6	160.8	166.1	162.2	164.2	171.0	153.3	175.4	143.5	162.5
1959.....	176.2	147.3	164.3	170.8	167.0	168.9	180.7	165.7	175.3	146.1	168.8
1960.....	184.3	148.2	169.4	176.6	173.2	175.0	192.6	166.4	178.0	156.8	175.5
1961.....	190.8	154.5	173.9	180.3	178.7	179.5	196.3	176.5	188.0	158.8	180.0
1962.....	199.4	161.1	177.2	184.7	184.3	184.5	206.2	180.5	195.3	162.2	185.9
1963.....	208.2	155.6	192.3	190.6	190.4	190.5	214.1	185.9	200.2	171.1	192.5
1964.....	219.6	157.4	188.0	197.6	196.8	197.2	223.6	193.8	206.5	182.2	199.8

15.—Average Wage and Salary Rates for Selected Occupations in Certain Cities Across Canada, Oct. 1, 1964

Industry and Occupation	Halifax, N.S.	Saint John, N.B.	Sher- brooke, Que.	Montreal, Que.	Toronto, Ont.	Hamilton, Ont.
	\$ per hr.	\$ per hr.	\$ per hr.	\$ per hr.	\$ per hr.	\$ per hr.
Construction (building and structures only)—						
Bricklayer and mason.....	2.58	2.45	2.55	2.93	3.45	3.35
Carpenter and joiner.....	2.32	2.14	2.35	2.73	3.30	3.43
Electrician.....	2.53	2.20	2.30	3.00	3.88	3.75
Painter and glazier.....	2.05	1.98	2.25	2.63	3.00	2.75
Plasterer.....	2.59	2.35	2.55	2.93	3.35	3.30
Plumber and steamfitter.....	2.60	2.30	2.40	3.05	3.69	3.75
Sheet metal worker.....	2.32	1.85	2.40	2.73	3.71	3.45
Labourer.....	1.73	1.25	1.95	2.11	2.35	2.20
Truck driver.....	1.75	1.30	1.95	2.11	2.35	2.20
Manufacturing and Other Industries—¹						
General labourer, male.....	1.61	1.53	1.44	1.67	1.80	1.95
Maintenance Trades—						
Carpenter.....	2.09	1.94	1.88	2.26	2.40	2.54
Electrician.....	2.25	2.15	2.02	2.42	2.63	2.77
Machinist.....	2.24	2.11	2.08	2.45	2.54	2.81
Mechanic.....	2.05	2.05	1.92	2.34	2.45	2.67
Millwright.....	2.21	2.21	1.84	2.40	2.54	2.57
Pipefitter.....	2.49	2.18	1.87	2.50	2.52	2.71
Tool and die maker.....	2.37	—	—	2.51	2.70	2.76
Welder.....	2.24	2.01	1.99	2.38	2.40	2.67
Service Occupations—						
Truck driver, light and heavy.....	1.65	1.47	1.61	1.87	2.04	2.03
Trucker, power.....	1.69	1.79	1.47	2.02	2.13	2.30
Office Occupations, Male—	per wk.	per wk.	per wk.	per wk.	per wk.	per wk.
Bookkeeper, senior.....	89	91	86	107	108	108
Clerk, intermediate.....	67	70	73	78	78	88
Clerk, senior.....	94	96	99	103	103	112
Order clerk.....	73	71	74	84	88	96
Draughtsman, intermediate.....	90	110	83	100	99	98
Draughtsman, senior.....	105	116	120	126	122	121
Office Occupations, Female—						
Clerk, intermediate.....	51	54	54	63	66	64
Machine Operator—						
Bookkeeping.....	52	50	50	59	64	60
Calculating.....	56	46	51	62	64	63

¹For footnote, see end of table, p. 740.

**15.—Average Wage and Salary Rates for Selected Occupations in Certain Cities
Across Canada, Oct. 1, 1964—concluded**

Industry and Occupation	Halifax, N.S.	Saint John, N.B.	Sher- brooke, Que.	Montreal, Que.	Toronto, Ont.	Hamilton, Ont.
	\$ per wk.	\$ per wk.	\$ per wk.	\$ per wk.	\$ per wk.	\$ per wk.
Office Occupations, Female—concluded						
Payroll clerk	56	57	51	68	71	64
Secretary, senior	71	70	64	86	84	81
Stenographer, junior	50	50	48	60	62	60
Stenographer, senior	61	62	64	72	71	71
Switchboard operator and receptionist	52	48	49	59	62	60
Typist, junior	46	43	39	52	55	53
Typist, senior	52	51	56	63	65	63
	Winnipeg, Man.	Regina, Sask.	Saska- toon, Sask.	Calgary, Alta.	Edmon- ton, Alta.	Van- couver, B.C.
	\$ per hr.	\$ per hr.	\$ per hr.	\$ per hr.	\$ per hr.	\$ per hr.
Construction (building and structures only)—						
Bricklayer and mason	2.80	2.68	2.75	3.10	3.00	3.39
Carpenter and joiner	2.60	2.45	2.36	2.85	2.80	3.34
Electrician	3.00	2.70	2.65	3.20	3.20	3.80
Painter and glazier	2.30	2.20	2.22	2.35	2.30	3.16
Plasterer	2.80	2.70	2.55	2.90	3.00	3.25
Plumber and steam fitter	3.10	2.65	2.65	2.95	3.00	3.47
Sheet metal worker	2.60	2.52	2.82	2.95	2.95	3.27
Labourer	1.65	1.67	1.79	2.05	2.05	2.47
Truck driver	1.75	1.70	1.79	2.05	2.05	2.61
Manufacturing and Other Industries—¹						
General labourer, male	1.74	1.68	1.66	1.86	1.75	2.13
Maintenance Trades—						
Carpenter	2.39	2.25	2.18	2.45	2.33	2.72
Electrician	2.50	2.67	2.55	2.71	2.66	2.92
Machinist	2.41	2.55	2.68	2.43	2.60	2.75
Mechanic	2.28	2.44	2.28	2.47	2.35	2.76
Millwright	2.45	2.51	2.31	2.46	2.59	2.87
Pipefitter	2.37	2.65	2.73	2.55	2.76	2.69
Tool and die maker	2.35	—	—	—	—	2.85
Welder	2.37	2.50	2.43	2.52	2.49	2.71
Service Occupations—						
Truck driver, light and heavy	1.62	1.77	1.74	2.00	1.89	2.37
Trucker, power	1.83	1.95	1.87	1.91	1.88	2.42
	per wk.	per wk.	per wk.	per wk.	per wk.	per wk.
Office Occupations, Male—						
Bookkeeper, senior	92	101	102	103	110	109
Clerk, intermediate	70	73	73	83	81	83
Clerk, senior	94	101	97	106	104	111
Order clerk	70	75	72	79	80	91
Draughtsman, intermediate	68	87	79	94	89	109
Draughtsman, senior	95	102	101	119	110	120
Office Occupations, Female—						
Clerk, intermediate	55	64	64	65	62	69
Machine Operator—						
Book keeping	54	58	56	58	56	60
Calculating	57	60	59	59	58	66
Payroll clerk	59	69	62	71	66	70
Secretary, senior	77	81	73	85	76	82
Stenographer, junior	51	60	55	59	55	58
Stenographer, senior	64	67	64	70	66	69
Switchboard operator and receptionist	52	56	54	59	55	61
Typist, junior	47	49	51	51	50	52
Typist, senior	56	64	59	62	61	64

¹ "Other Industries" consists of logging; mining; transportation (all sectors including air transportation), storage and communication (including radio and TV); public utilities; trade; finance; and government and personal service.

Table 16 gives summary data on working conditions of plant and office employees in manufacturing industries for the years 1960-64 and also for all industries in 1963 and 1964. The percentages in this table denote the proportions that employees—plant or office—of establishments reporting specific items bear to the total number of all such employees in all establishments replying to the survey; they are not necessarily the proportions of employees actually covered by the various items.

Further details and additional information may be seen in the annual report *Working Conditions in Canadian Industry*, compiled and published by the Department of Labour and based on a survey at May 1 each year of some 20,000 establishments.

16.—Summary of Selected Working Conditions of Non-office and Office Employees in Manufacturing Industries, 1960-64 and All Industries 1963 and 1964

Item	1960	1961	1962	1963		1964	
				Manu- facturing Industries	All Industries ¹	Manu- facturing Industries	All Industries ¹
	COVERAGE						
Non-office Employees— Reporting establishments.... No. Employees..... “	8,028 809,736	8,320 778,475	8,618 822,623	8,494 853,647	19,830 1,541,163	8,718 892,462	19,057 1,622,929
Office Employees— Reporting establishments.... No. Employees..... “	7,732 234,618	8,012 242,360	8,338 252,546	8,213 263,814	18,176 681,658	8,408 275,719	19,260 718,718
	PERCENTAGES OF NON-OFFICE EMPLOYEES						
Standard Weekly Hours— 40 and under..... Over 40 and under 44..... 44..... 45..... Over 45 and under 48..... 48..... Over 48.....	70 10 4 4 8 1 4 3	72 8 4 4 8 1 4 3	73 8 4 4 7 1 4 3	75 8 3 7 1 3 3 3	71 7 6 5 1 5 3 3	76 7 3 8 1 3 3 2	71 6 6 6 6 1 5 3
Employees on a five-day week.....	90	90	90	91	83	92	83
Vacations with Pay— Two weeks..... After: 1 year or less..... 2 years..... 3 years..... 4-5 years..... Other periods.....	86 20 14 26 25 1	88 23 13 26 25 1	88 24 12 26 25 1	88 25 11 27 24 1	86 35 18 17 16 —	89 25 11 23 25 —	87 35 13 18 16 —
Three weeks..... After: Less than 10 years..... 10 years..... 11-14 years..... 15 years..... 20 years..... Other periods.....	72 6 11 4 45 2 4	72 7 19 6 35 2 3	73 7 21 7 34 3 1	74 8 22 10 31 2 1	74 14 20 7 30 2 1	75 8 25 9 29 3 1	75 15 22 7 23 2 1
Four weeks..... After: Less than 25 years..... 25 years..... More than 25 years.....	31 4 25 2	33 4 27 2	36 9 25 2	40 15 23 2	47 16 23 3	41 13 21 2	47 19 26 2
Vacations that do not increase with length of service..... 1 week..... 2 weeks.....	12 5 7	11 5 6	11 5 6	11 6 5	11 5 6	10 5 5	11 5 6

¹ Available for the first time in 1963.

16.—Summary of Selected Working Conditions of Non-office and Office Employees in Manufacturing Industries, 1960-64 and All Industries 1963 and 1964—concluded

Item	1960	1961	1962	1963		1964	
				Manu- facturing Industries	All Industries ¹	Manu- facturing Industries	All Industries ¹
PERCENTAGES OF NON-OFFICE EMPLOYEES—concluded							
Paid Statutory Holidays.....	96	96	95	95	93	96	93
1-3.....	10	9	8	6	6	5	5
6.....	5	5	5	5	5	5	5
7.....	8	8	8	10	14	8	13
8.....	53	53	52	53	40	56	42
9.....	15	16	18	18	20	19	20
More than 9.....	3	3	3	3	8	3	8
PERCENTAGES OF OFFICE EMPLOYEES							
Standard Weekly Hours—							
Under 37½.....	27	27	29	29	34	32	34
37½.....	43	43	42	43	35	41	36
Over 37½ and under 40.....	8	8	7	6	5	5	5
40.....	18	18	19	19	22	20	22
Over 40.....	4	4	3	3	4	2	3
Employees on a five-day week.....	95	96	97	97	95	97	96
Vacations with Pay—							
Two weeks.....	90	91	92	93	92	93	92
After: 1 year or less.....	79	82	85	85	86	87	86
2 years.....	7	7	5	5	4	4	4
3 years.....	1	1	1	1	1	1	1
5 years.....	2	1	1	1	1	1	1
Other periods.....	1	..	..	1	—	—	—
Three weeks.....	83	83	84	85	87	86	87
After: Less than 10 years.....	7	7	8	9	24	10	25
10 years.....	22	23	33	35	28	39	31
11-14 years.....	4	7	9	13	7	12	6
15 years.....	46	33	31	26	26	23	23
20 years.....	2	2	2	1	1	1	1
Other periods.....	2	1	1	1	—	1	1
Four weeks.....	37	41	47	50	59	52	60
After: Less than 25 years.....	5	7	13	16	16	20	20
25 years.....	28	31	31	31	33	29	36
More than 25 years.....	4	3	3	3	5	3	4
Vacations that do not increase with length of service.....	10	7	7	6	6	6	6
1 week.....	1	1	1	1	—	1	1
2 weeks.....	9	6	6	5	5	5	4
3 weeks.....	—	—	—	—	1	—	1
Paid Statutory Holidays.....	99	99	99	99	99	100	99
1-6.....	4	5	4	4	3	3	3
7.....	7	6	7	7	12	5	10
8.....	60	58	58	59	40	62	37
9.....	22	23	24	24	26	24	27
More than 9.....	5	6	5	5	13	6	22

¹ Available for the first time in 1963.

Wages of Farm Labour.—The information on farm wages is provided by volunteer farm correspondents located in all provinces except Newfoundland. The rates presented in Table 17 are average wages paid to all farm help regardless of age and skill. Because the rates reported may cover a wide range of skills, of types of work and of ages of hired workers.

the value of the resulting data is considered to be an indicator of trends rather than a measure of absolute wage levels. No attempt has been made to have the wage rates reflect such perquisites as separate housing accommodation, fuel, electricity and food which, under some conditions of hiring, are supplied by employers to their hired farm help.

17.—Average Daily and Monthly Wages of Male Farm Help as at Jan. 15, May 15 and Aug. 15, 1963-65

NOTE.—Figures from 1940 are given in the corresponding table of previous Year Books beginning with the 1943-44 edition.

Province and Year	January 15				May 15				August 15			
	Daily		Monthly		Daily		Monthly		Daily		Monthly	
	With Board	Without Board	With Board	Without Board	With Board	Without Board	With Board	Without Board	With Board	Without Board	With Board	Without Board
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
Maritime Provinces—												
1963.....	5.20	6.40	108.00	141.00	5.40	6.60	109.00	145.00	5.40	6.60	109.00	140.00
1964.....	5.30	6.50	116.00	145.00	5.50	6.70	111.00	151.00	5.60	6.80	115.00	145.00
1965.....	5.50	6.90	121.00	156.00	5.60	7.10	120.00	152.00	5.90	7.40	118.00	149.00
Quebec—												
1963.....	6.20	7.50	119.00	160.00	6.40	8.00	117.00	160.00	6.60	7.80	125.00	172.00
1964.....	6.30	8.00	125.00	167.00	6.40	8.30	124.00	169.00	6.60	8.30	125.00	173.00
1965.....	6.60	8.50	128.00	174.00	6.70	8.50	131.00	171.00	6.90	8.90	132.00	183.00
Ontario—												
1963.....	6.40	8.30	127.00	171.00	6.80	8.30	126.00	174.00	7.00	8.70	127.00	172.00
1964.....	6.60	8.60	132.00	175.00	7.00	8.60	133.00	179.00	7.40	8.90	136.00	185.00
1965.....	6.90	8.70	137.00	185.00	7.50	9.10	148.00	195.00	8.00	10.00	153.00	216.00
Manitoba—												
1963.....	5.90	7.70	114.00	152.00	6.80	8.20	140.00	172.00	7.10	8.80	142.00	175.00
1964.....	6.20	8.10	120.00	159.00	7.10	8.90	148.00	189.00	7.70	9.40	149.00	188.00
1965.....	6.80	8.50	123.00	170.00	7.20	9.20	155.00	194.00	8.00	10.20	163.00	203.00
Saskatchewan—												
1963.....	6.10	7.60	110.00	146.00	7.20	9.10	153.00	188.00	7.50	9.50	156.00	190.00
1964.....	6.40	8.00	118.00	156.00	7.60	9.90	158.00	200.00	8.20	10.00	162.00	196.00
1965.....	6.80	8.50	127.00	168.00	8.00	10.00	171.00	212.00	9.00	10.70	180.00	218.00
Alberta—												
1963.....	6.40	8.30	129.00	176.00	7.20	8.90	152.00	190.00	7.40	9.30	152.00	196.00
1964.....	6.40	8.40	129.00	177.00	7.70	9.80	159.00	202.00	7.70	9.70	160.00	205.00
1965.....	6.90	8.80	143.00	190.00	7.80	9.90	170.00	216.00	8.10	10.40	175.00	220.00
British Columbia—												
1963.....	7.90	9.80	149.00	212.00	7.90	10.00	157.00	217.00	8.10	10.10	158.00	223.00
1964.....	7.90	9.80	149.00	213.00	8.20	10.00	164.00	236.00	8.10	10.00	161.00	230.00
1965.....	8.00	10.20	160.00	233.00	8.40	10.60	175.00	242.00	8.80	10.80	185.00	256.00
Totals—												
1963.....	6.10	7.60	124.00	167.00	6.50	8.10	137.00	179.00	6.80	8.30	140.00	183.00
1964.....	6.20	8.00	128.00	171.00	6.80	8.50	143.00	188.00	7.00	8.70	145.00	190.00
1965.....	6.40	8.20	135.00	183.00	7.00	8.80	154.00	198.00	7.60	9.60	159.00	208.00

Section 5.—Unemployment Insurance and National Employment Service

Unemployment Insurance.*—During the depression of the 1930's the need for a nation-wide unemployment insurance program became recognized. In 1935 the Employment and Social Insurance Act was passed by the Federal Parliament but was subsequently declared invalid by the Privy Council. Later, by consent of the provinces, an amendment to the British North America Act was obtained empowering the Federal Parliament to legislate on unemployment insurance and in 1940 the Unemployment Insurance Act was passed, making provision for a compulsory contributory unemployment insurance program at the national level and also for the establishment of a national employment service to operate in conjunction with and ancillary to the unemployment insurance operations. The Act came into effect on July 1, 1941; amended on several occasions, it was replaced by a new Unemployment Insurance Act, effective Oct. 2, 1955.† On Apr. 1, 1965, the operation of the National Employment Service was transferred to the Department of Labour.

Legislation provides for compulsory coverage of some four fifths of all non-agricultural employees under an insurance program administered by the Federal Government, and requires employers to join with their insurable employees and the Government in building up a fund. This fund is held in trust by the Unemployment Insurance Commission for the payment of benefit to eligible unemployed persons. The Act is administered by a Commission of three persons appointed by the Governor in Council, of whom one is the Chief Commissioner; one Commissioner, other than the Chief Commissioner, is appointed after consultation with employer organizations and the other after consultation with employee organizations.

The Unemployment Insurance Act applies to all persons employed under a contract of service,‡ except the following: employment in specified industries or occupations such as agriculture, horticulture and forestry (effective Jan. 1, 1956, coverage was also extended to certain employments in these three industries); the Canadian Armed Forces; the permanent public service of the Federal Government; provincial government employees except where insured with the concurrence of the government of the province; certified permanent employees of municipal or public authorities; private domestic service; private-duty nursing; teaching; certain director-officers of corporations; workers on other than an hourly, daily or piece rate earning more than \$5,460 a year effective Sept. 27, 1959, unless they elect to continue as insured persons; employees in a charitable institution or in a hospital not carried on for purpose of gain except where the institution or hospital consents to insure certain groups or classes of persons with the concurrence of the Commission. All persons paid by the hour, day, or at a piece rate (including a mileage rate) are insured regardless of amount of earnings.

The amount of the employee contribution is determined by the employee's weekly earnings; an equal contribution is required from the employer. The Federal Government contributes one fifth of the aggregate employer-employee contribution and defrays administrative expenses. Contributions became payable on July 1, 1941. Benefit became payable on Jan. 27, 1942 and by Mar. 31, 1964 a total of \$4,475,000,000 had been paid.

The following statement shows the current weekly rates of contribution and benefit effective Sept. 27, 1959. The weekly contribution is based on actual earnings in the week, irrespective of the number of days worked. The benefit rates are calculated on the

* Prepared by the Unemployment Insurance and Pensions Section, Labour Division, Dominion Bureau of Statistics; statistics of unemployment insurance are compiled and published by the DBS from material supplied by the Unemployment Insurance Commission.

† Copies of the 1955 Act incorporating subsequent amendments are available from the Queen's Printer, Ottawa (Catalogue No. LU2-359).

‡ Commencing Apr. 1, 1957, coverage was extended to persons engaged in fishing, notwithstanding the fact that such persons are not employees of any other person but are usually self-employed.

average weekly contributions for the last 30 weeks in the 104 weeks preceding claim. In order to qualify for regular benefit, a claimant must have at least 30 weekly contributions in the last 104 weeks prior to claim, eight weekly contributions since the start of the last preceding regular benefit period or in the last year prior to claim, whichever is the shorter period, and 24 weekly contributions since the start of the last preceding benefit period, or in the year prior to the claim, whichever is the longer period.

WEEKLY RATES OF CONTRIBUTION AND BENEFIT UNDER THE UNEMPLOYMENT INSURANCE ACT, IN EFFECT FROM SEPT. 27, 1959

NOTE.—Weekly rates in effect from Oct. 2, 1955 to Sept. 26, 1959 are given in the 1962 Year Book, p. 738.

Range of Weekly Earnings	Weekly Employee Contribution	Range of Average Weekly Contributions	Weekly Rates of Benefit		Earnings not Deducted	
			Person Without Dependant	Person With Dependant	Person Without Dependant	Person With Dependant
	cts.	cts.	\$	\$	\$	\$
Under \$9.....	10 ¹	Under 25.....	6	8	3	4
\$ 9 and under \$15.....		25 and under 34.....	9	12	5	6
15 " " 21.....	30	34 " " 42.....	11	15	6	8
21 " " 27.....	38	42 " " 50.....	13	18	7	9
27 " " 33.....	46	50 " " 57.....	15	21	8	11
33 " " 39.....	54	57 " " 63.....	17	24	9	12
39 " " 45.....	60	63 " " 69.....	19	26	10	13
45 " " 51.....	66	69 " " 75.....	21	28	11	14
51 " " 57.....	72	75 " " 82.....	23	30	12	15
57 " " 63.....	78	82 " " 90.....	25	33	13	17
63 " " 69.....	86	90 or over.....	27	36	14	18
69 or over.....	94					

¹ A half stamp.

The Act contains a special provision whereby the regular contribution requirements are relaxed somewhat during a 5½-month period commencing with the first week of December each year. Under this provision, claimants unable to fulfil the contribution requirements for regular benefit may draw "seasonal benefit" if they have at least 15 contribution weeks during the fiscal year or, failing this, if they terminated regular benefit since the previous mid-May.

Statistics on the Operation of the Act.—In order to assess the impact of changing economic conditions on the insurance program, provision is made for collection of current operational data, such as claims filed and processed and payments made. This information is published monthly in the *Statistical Report on the Operation of the Unemployment Insurance Act* (Catalogue No. 73-001). Current claims and payment data are useful for administrative purposes and are also a source of information to the public regarding financial and other aspects of the program.

Persons wishing to draw benefit must file either an initial or a renewal claim. Where it is necessary to compute entitlement to benefit, an initial claim is taken, otherwise a renewal. In the main, initial and renewal claims combined are an approximation of recorded separations from employment during a month. However, if a claimant exhausts his benefit and wishes to be reconsidered for further benefit, an initial claim is required. Such claims, accounting for approximately 15 p.c. of the monthly volume in 1964, are not new cases of disemployment. The count of claimants at the month-end indicates the extent to which claimants maintain contact with local offices of the Commission.

18.—Claims Filed, Claimants and Amount Paid, by Month, 1963 and 1964

Month	1963			1964		
	Initial and Renewal Claims Filed	Claimants at End of Month	Amount Paid	Initial and Renewal Claims Filed	Claimants at End of Month	Amount Paid
	'000	'000	\$'000	'000	'000	\$'000
January.....	319	704	58,560	259	599	46,412
February.....	189	720	58,742	172	607	50,127
March.....	196	685	61,287	182	597	53,551
April.....	176	566	57,583	175	498	52,583
May.....	123	271	41,147	105	250	33,117
June.....	83	220	15,987	87	202	16,538
July.....	113	219	15,506	109	205	14,086
August.....	86	193	14,007	79	182	13,199
September.....	93	186	12,528	86	174	12,792
October.....	126	219	13,989	121	215	12,841
November.....	189	303	15,467	169	275	14,647
December.....	345	532	29,361	316	478	24,498
Totals.....	2,038	402¹	394,163	1,860	357¹	344,390

¹ Average of month-end data.

In addition to the monthly data published on the operation of the Unemployment Insurance Act, annual tabulations are compiled regarding persons employed in insurable employment and benefit periods established and terminated. These data are published in the annual report *Benefit Periods Established and Terminated under the Unemployment Insurance Act* (Catalogue No. 73-201). Data on persons insured under the Act are obtained from a 10-p.c. sample of insurance books and contribution cards renewed at June 1 each year. Included are persons engaged in insurable employment as well as persons on claim at that date.

19.—Persons Insured under the Unemployment Insurance Act, by Industrial Group and Sex, 1963 and 1964

NOTE.—Based on a 10-p.c. sample of contributors and claimants at June 1.

Industry	1963		1964	
	Males	Females	Males	Females
	No.	No.	No.	No.
Agriculture.....	9,480	1,920	11,430	1,900
Forestry (mainly logging).....	43,930	1,300	74,330	1,730
Fishing and trapping.....	15,700	210	27,500	240
Mines (including milling), quarries, oil wells.....	96,720	3,930	99,370	4,390
Manufacturing.....	1,021,780	344,880	1,051,620	374,860
Construction.....	260,440	8,950	316,130	9,300
Transportation, communication and other utilities.....	376,390	67,470	349,880	70,520
Trade.....	440,870	67,470	469,100	288,030
Finance, insurance, real estate.....	32,710	114,920	61,710	120,630
Community, business and personal service.....	200,090	228,430	220,960	263,540
Public administration and defence.....	120,320	26,660	134,350	32,790
Industry unspecified or undefined (incl. claimants).....	291,910	111,460	124,980	60,550
Totals, All Industries.....	2,940,340	1,173,030	2,941,360	1,228,480

Benefit.—The duration of regular benefit is related to the contribution history—one week's benefit for every two weeks' contributions in the past 104 weeks with a maximum of 52 weeks. However, contributions more than one year old cannot be used if they have already been taken into account in computing previous rights. Disqualifications for benefit include: loss of work owing to a labour dispute in which the contributor is participating or directly interested; unwillingness to accept suitable employment; being an inmate of any prison or any institution supported out of public funds; refusal to attend a course of instruction or training if directed to do so; residence outside Canada unless otherwise prescribed. Disqualification of a claimant for a period not exceeding six weeks may be imposed if an employee is discharged by reason of his own misconduct or leaves the employment voluntarily without just cause or refuses suitable employment.*

Table 20 distributes regular benefit periods terminated by province and shows average weeks and average dollar benefit paid on these terminations. A claimant establishes a *regular benefit period* when he submits his claim in the prescribed manner and proves he has fulfilled the minimum contribution requirements. The duration of benefit and the weekly rate authorized, comprising total entitlement, are then calculated and the claimant's benefit may be drawn upon during successive intervals of unemployment. His benefit period terminates either when he has exhausted the amount authorized or when 12 months have elapsed since he established, whichever comes first.

* This list should not be considered exhaustive; more detail may be obtained from the Unemployment Insurance Act and Regulations.

20.—Regular Benefit Periods Terminated, Duration and Average Amount of Benefit Paid, by Province, 1963 and 1964

NOTE.—Based on a 20-p.c. sample.

Province	1963			1964		
	Benefit Periods Terminated	Average Weeks Paid on Termination	Average Amount Paid on Termination	Benefit Periods Terminated	Average Weeks Paid on Termination	Average Amount Paid on Termination
	No.	No.	\$	No.	No.	\$
Newfoundland.....	25,410	14.8	390	21,835	14.4	380
Prince Edward Island.....	4,670	15.1	329	3,770	14.9	327
Nova Scotia.....	41,815	13.6	325	35,010	13.6	323
New Brunswick.....	36,385	14.4	340	31,090	13.6	325
Quebec.....	291,405	12.8	328	253,340	12.6	323
Ontario.....	313,700	11.8	298	277,595	11.1	282
Manitoba.....	38,470	14.0	346	32,815	13.0	325
Saskatchewan.....	25,000	14.4	361	21,980	12.9	327
Alberta.....	52,675	12.7	331	46,955	11.7	306
British Columbia.....	94,215	12.5	327	88,080	11.8	309
Totals.....	923,745	12.7	322	812,470	12.1	308

Table 21 gives regular benefit periods terminated and average weeks paid, classified by age group and occupation of claimant.

21.—Regular Benefit Periods Terminated and Duration of Benefit Paid, classified by Age Group and Occupation of Claimant, 1963 and 1964

NOTE.—Based on a 20-p.c. sample.

Age Group and Occupation	1963		1964	
	Benefit Periods Terminated	Average Weeks Paid on Termination	Benefit Periods Terminated	Average Weeks Paid on Termination
Age Group	No.	No.	No.	No.
Under 20 years.....	28,515	10.7	24,005	10.3
20 — 24 ".....	162,435	11.7	147,125	10.9
25 — 34 ".....	257,105	11.5	217,365	10.9
35 — 44 ".....	196,610	11.7	175,240	11.0
45 — 54 ".....	145,170	12.7	126,260	12.4
55 — 64 ".....	88,080	14.8	80,495	14.5
65 years or over.....	40,190	25.2	36,150	24.6
Unspecified.....	5,640	12.4	5,830	12.5
Totals.....	923,745	12.7	812,470	12.1
Occupation				
Managerial.....	9,735	15.5	8,570	14.4
Professional and technical.....	9,040	13.1	7,780	12.0
Clerical.....	96,645	15.6	84,720	15.2
Sales.....	42,145	14.1	38,345	13.7
Service and recreation.....	83,005	14.8	78,355	13.6
Transportation and communications.....	71,840	13.0	58,220	13.1
Transportation.....	65,580	12.8	62,440	12.6
Communications.....	6,460	19.4	5,780	18.0
Farmers and farm workers.....	9,440	13.5	8,225	13.4
Loggers, etc.....	38,550	12.5	33,205	11.5
Fishermen, trappers and hunters.....	1,600	12.8	2,145	13.1
Miners, quarrymen, etc.....	18,495	12.1	12,680	10.5
Craftsmen, production process, etc.....	359,270	11.1	317,750	10.7
Labourers, <i>n.e.s.</i>	169,195	12.6	148,525	11.9
Not stated.....	14,785	12.8	13,950	12.2

Table 22 gives provincial distributions of seasonal benefit periods in 1963 and 1964, average weeks and average benefit paid.

22.—Seasonal Benefit Periods, Duration of Benefit and Amount Paid, by Province, 1963 and 1964

NOTE.—Based on a 10-p.c. sample.

Province	1963			1964		
	Benefit Periods	Average Weeks Paid	Average Amount Paid	Benefit Periods	Average Weeks Paid	Average Amount Paid
	No.	No.	\$	No.	No.	\$
Newfoundland.....	27,625	13.1	304	27,810	13.0	310
Prince Edward Island.....	5,960	12.5	273	5,310	12.4	276
Nova Scotia.....	24,315	11.3	258	22,360	11.1	261
New Brunswick.....	27,725	11.5	256	24,740	11.2	255
Quebec.....	108,125	9.7	234	96,345	9.4	227
Ontario.....	84,600	9.4	216	74,050	9.0	210
Manitoba.....	17,025	9.8	235	12,880	9.2	225
Saskatchewan.....	12,785	9.7	229	9,670	9.0	217
Alberta.....	16,990	9.2	227	14,240	8.4	210
British Columbia.....	35,425	10.0	258	29,670	9.7	250
Totals.....	360,575	10.2	241	317,075	9.9	237

National Employment Service.—On Apr. 1, 1965, the National Employment Service, which had operated since 1941 under the jurisdiction of the Unemployment Insurance Act, was transferred to the Department of Labour. The transfer was recommended by the Gill Committee of Inquiry into operations under the Unemployment Insurance Act in order to place most of the essential elements of manpower policy within the authority of the Minister of Labour. The National Employment Service is now the key operational agency in the manpower field. In addition to maintaining the free employment service, the 1963 and 1964 operations of which are shown in Table 23, it gathers and disseminates information regarding labour demand and supply, and deals with the movement of workers from one area to another.

23.—Applications for Employment, Vacancies Notified and Placements Effected by Employment Offices, by Province, 1963 and 1964

NOTE.—Figures from 1920 are given in the corresponding table of previous Year Books beginning with the 1926 edition.

Province and Year	Applications Registered		Vacancies Notified		Placements Effected	
	Males	Females	Males	Females	Males	Females
	No.	No.	No.	No.	No.	No.
Newfoundland.....1963	69,847	6,858	9,154	1,855	7,900	1,278
.....1964	78,546	8,441	11,826	2,850	8,604	1,804
Prince Edward Island.....1963	17,197	6,878	7,695	3,965	6,044	3,470
.....1964	16,817	7,052	8,215	4,268	6,437	3,616
Nova Scotia.....1963	99,842	36,062	22,142	13,007	19,696	9,969
.....1964	104,116	37,580	24,354	15,163	21,423	11,489
New Brunswick.....1963	105,713	34,753	26,846	12,002	25,441	10,284
.....1964	105,837	34,112	29,304	12,810	27,004	10,532
Quebec.....1963	855,819	270,075	291,234	125,864	246,121	95,356
.....1964	864,652	283,425	315,304	128,857	262,439	94,531
Ontario.....1963	992,890	447,245	339,905	198,467	277,601	146,919
.....1964	978,958	464,461	367,535	202,313	290,169	147,136
Manitoba.....1963	130,691	59,165	51,598	30,696	42,699	23,231
.....1964	133,786	57,758	58,311	31,258	48,231	23,471
Saskatchewan.....1963	94,188	38,068	32,447	16,157	27,877	11,577
.....1964	91,914	40,168	34,864	18,574	28,098	12,342
Alberta.....1963	182,352	75,737	64,231	38,508	53,213	27,563
.....1964	178,309	77,620	73,661	40,859	59,714	28,966
British Columbia.....1963	363,972	155,698	92,800	67,389	83,789	58,081
.....1964	341,164	160,282	106,825	73,623	93,677	61,493
Totals.....1963	2,912,511	1,130,539	938,052	507,910	790,381	387,728
.....1964	2,894,099	1,170,889	1,030,199	530,575	845,696	395,380

Section 6.—Industrial Accidents and Workmen's Compensation

Fatal Industrial Accidents.—Data on fatal industrial accidents, compiled by the federal Department of Labour, are obtained from provincial Workmen's Compensation Boards, from the Board of Transport Commissioners and other government authorities, and from press reports.

Of the 1,280 fatal accidents to industrial workers that occurred during 1964, 318 were the result of the victims being struck by objects—63 by falling trees or limbs, 61 by landslides or cave-ins, 34 by materials falling from stockpiles or loads, 23 by automobiles or trucks and the remainder by other falling or flying objects. Falls and slips were responsible for 269 fatalities, collisions, derailments, wrecks, etc., for 263, and 142 fatalities were included in the classification "caught in, on or between objects, vehicles, etc.". There were 98 deaths caused by exposure to dust, poisonous gases and poisonous substances, 68

by conflagrations, explosions and exposure to hot substances, 51 by contact with electric current, 28 by over-exertion, strains, etc., and eight by striking against or stepping on objects. The remainder were the result of miscellaneous accidents.

24.—Fatal Industrial Accidents, by Industry, 1961-64

Industry	Numbers				Percentages of Total			
	1961	1962	1963	1964 ^p	1961	1962	1963	1964 ^p
Agriculture.....	68	62	49	72	6.3	5.5	4.0	5.6
Forestry.....	99	127	122	150	9.1	11.2	9.9	11.7
Fishing and trapping.....	40	12	34	37	3.7	1.0	2.8	2.9
Mining, quarrying and oil wells.....	135	151	163	159	12.4	13.3	13.2	12.4
Manufacturing.....	178	216	222	228	16.4	19.0	18.0	17.8
Construction.....	238	204	234	250	21.9	18.0	19.0	19.5
Transportation, communication and other utilities.....	188	209	210	222	17.3	18.4	17.0	17.4
Trade.....	52	58	61	55	4.8	5.1	4.9	4.3
Finance, insurance and real estate.....	1	2	1	2	0.1	0.2	0.1	0.2
Service.....	87	94	137	105	8.0	8.3	11.1	8.2
Totals.....	1,086	1,135	1,233	1,280	100.0	100.0	100.0	100.0

Workmen's Compensation.*—In all provinces legislation is in force providing for compensation for injury to a workman by accident arising out of and in the course of employment, or for disablement caused by a specified industrial disease, except where the workman is disabled for fewer than a stated number of days. The Acts of all provinces provide for a compulsory system of collective liability on the part of employers. To ensure payment of compensation, each Act provides for an accident fund, administered by the province, to which employers are required to contribute at a rate determined by the Workmen's Compensation Board in accordance with the hazards of the industry. A workman to whom these provisions apply has no right of action against his employer for injury from an accident during employment. The Acts vary in scope but in general they cover construction, mining, manufacturing, lumbering, transportation and communications and the operation of public utilities. The Acts also cover various types of commercial establishments. Undertakings in which not more than a stated number of workmen are usually employed are excluded in some provinces. In Ontario and Quebec, public authorities, railway and shipping companies, and telephone and telegraph companies are individually liable for compensation as determined by the Board and pay a proportion of the expenses of administration. A federal Act provides for compensation for accidents to Federal Government employees according to the scale of benefits provided by the Act of the province in which the employee is usually employed. Seamen who are not under a provincial Workmen's Compensation Act are entitled to compensation under the Merchant Seamen Compensation Act.

Benefits in case of disability include all necessary medical care and hospitalization, cash payments during the period of temporary disability to indemnify the injured workman for loss of wages, a life pension for any resulting permanent disability, and rehabilitation services. In the case of the death of the workman, a widow is granted a monthly pension, a special lump sum payment, an allowance for funeral expenses and a monthly payment for each child under the age limit provided by the law. When there is no dependent widow or children and there are other dependants such as a parent or parents, an award is made which, in the judgment of the Board concerned, is proportionate to the pecuniary loss sustained.

Table 25 gives the number of industrial accidents reported by each of the provinces and the amount of compensation paid by Workmen's Compensation Boards in the year 1963.

* More detailed information is given in the Department of Labour publication *Workmen's Compensation in Canada, A Comparison of Provincial Laws*.

25.—Industrial Accidents Reported and Compensation Paid by Workmen's Compensation Boards, 1963

Province	Industrial Accidents Reported					Com- pensation Paid ²
	Medical Aid Only ¹	Temporary Disability	Permanent Disability	Fatal	Total	
	No.	No.	No.	No.	No.	\$
Newfoundland.....	5,838	4,210	84	20	10,152	2,048,149
Prince Edward Island.....	1,256	952	32	4	2,244	523,742
Nova Scotia.....	12,170	7,547	310	31	20,058	5,106,912
New Brunswick.....	10,611	7,854	256	26	18,747	2,669,183
Quebec.....	..	..	..	224	122,248	29,367,500 ³
Ontario ⁴	142,614	52,535	1,741	200	197,090	61,714,678 ³
Manitoba.....	13,601	10,083	387	28	24,099	8,675,326
Saskatchewan.....	11,004	10,153	357	48	21,562	5,332,955
Alberta.....	29,915	21,230	809	90	52,044	11,354,686
British Columbia.....	45,469	23,181	1,124	156	69,930	23,053,029
Totals.....	..	..	..	827	538,174	149,846,160

¹ Accidents requiring medical treatment but not causing disability for a sufficient period to qualify for compensation; the period varies in the several provinces.

² Includes, except where noted otherwise, payments to compensate loss of earnings, medical aid payments, cost of rehabilitation and hospitalization (not including capital expenditures) and pensions paid (not pensions awarded) for temporary and permanent disabilities.

³ Includes payments by employers who make direct compensation to their employees; such employees come under Schedule II of the Ontario and Quebec Workmen's Compensation Acts.

⁴ From Jan. 1, to Sept. 30, 1963.

Section 7.—Organized Labour in Canada

Union membership in Canada at the beginning of 1965 totalled 1,589,000, the highest on record. It amounted to 29.7 p.c. of the 5,343,000 non-agricultural paid workers in Canada as of January 1965, and 23.2 p.c. of the over-all labour force.

26.—Union Membership in Canada, 1937-65

Year	Members	Year	Members	Year	Members	Year	Members
	'000		'000		'000		'000
1937.....	383	1944.....	724	1952.....	1,146	1959.....	1,459 ²
1938.....	382	1945.....	711	1953.....	1,220	1960.....	1,459
1939.....	359	1946.....	832	1954.....	1,268	1961.....	1,447
1940.....	362	1947.....	912	1955.....	1,268	1962.....	1,423
1941.....	462	1948.....	978	1956.....	1,352	1963.....	1,449
1942.....	578	1949 ^{1,2}	1,006	1957.....	1,386	1964.....	1,493 ¹
1943.....	665	1951 ¹	1,029	1958.....	1,454	1965.....	1,589

¹ Figures for years up to and including 1949 are as at Dec. 31; figures from 1951 are as at Jan. 1.

² Newfoundland included from 1949.

³ Adjustment in coverage resulted in a net addition of approximately 23,000 members.

⁴ Includes an addition of approximately 7,000 members resulting from improved coverage.

Almost three quarters of all union members in Canada were in organizations affiliated with the Canadian Labour Congress (CLC); in most cases these unions were also affiliated with the American Federation of Labor and Congress of Industrial Organizations. Another 9.4 p.c. of the total union membership in 1965 was affiliated with the Confederation of National Trade Unions (CNTU). Unaffiliated international and national unions accounted for 12 p.c., while 3 p.c. was in independent local organizations.

The 1965 union membership in Canada was higher by almost 96,000 than the previous year, a net gain of 6.4 p.c., and the highest percentage increase in any year since 1956. Among international unions operating in Canada, the largest increase was reported by the United Automobile and Aerospace and Agricultural Implement Workers of America, with

a gain of 14,000 members over 1964. The United Steelworkers of America reported an increase of 8,000 and the International Brotherhood of Carpenters and Joiners of America an increase of 6,900. Membership increases of 4,300 and 4,200 were reported by the United Brotherhood of Woodworkers and the International Brotherhood of Teamsters, Chauffeurs, Warehousemen and Helpers of America, respectively. Substantial increases were also reported by several federations of the CNTU. The National Federation of Services (Fédération Nationale des Services) increased its membership by 7,000 during the year, the Building Workers Federation (Fédération des Travailleurs en Bâtiments du Canada) by 5,200 and the Clothing Workers Federation (Fédération Nationale des Travailleurs de l'Industrie du Vêtement) and the Metal Trades Federation (Fédération Nationale de la Métallurgie) each reported increases of 3,000; most of the increase in the Clothing Workers' Federation resulted from its merger with the Leather and Shoe Workers' Federation.

The 1965 figures show an increase of 75,000 or 6.8 p.c. for the CLC and an increase of 28,500 or 23.5 p.c. for the CNTU. While much of the change in congress-affiliated membership reflected actual increases in the number of union members, it should be noted that some is accounted for by changes in affiliation; the affiliation with a congress of a formerly independent union, for instance, shows up as an increase in congress membership and a corresponding decrease in the membership of the independent unions. The figures for total union membership are not, however, affected by these internal shifts.

Few unions registered decreases in membership between 1964 and 1965. The Canadian Brotherhood of Railway, Transport and General Workers reported a drop of 3,600 members, due mainly to its replacement by a CNTU-affiliated union as bargaining agent for employees of the Montreal Transportation Commission and the Provincial Transport Company. District 50, United Mine Workers of America reported 1,000 fewer members in 1965, the Canadian Union of Public Employees membership was down by 1,250 and the National Council of Canadian Labour and the Seafarers' International Union of Canada both registered decreases of 900 members.

The ten largest unions, listed below in order of their membership in 1965, made up 36 p.c. of Canada's union membership in 1965:—

<i>Relative Position in 1965</i>	<i>Union and Affiliation</i>	<i>Member- ship in 1965</i>	<i>Relative Position in 1964</i>
		No.	
1.	United Steelworkers of America (AFL-CIO/CLC)	110,000	1
2.	Canadian Union of Public Employees (CLC)	84,800	2
3.	International Union, United Automobile, Aerospace and Agricultural Implement Workers of America (AFL-CIO/CLC)	77,500	3
4.	United Brotherhood of Carpenters and Joiners of America (AFL-CIO/CLC)	64,000	4
5.	International Woodworkers of America (AFL-CIO/CLC)	43,600	6
6.	International Brotherhood of Teamsters, Chauffeurs, Warehousemen and Helpers of America (Ind.)	42,400	7
7.	International Association of Machinists (AFL-CIO/CLC)	41,200	5
8.	International Brotherhood of Electrical Workers (AFL-CIO/CLC)	38,000	8
9.	International Brotherhood of Pulp, Sulphite and Paper Mill Workers (AFL-CIO/CLC)	36,900	9
10.	Canadian Brotherhood of Railway, Transport and General Workers (CLC)	32,100	10

Affiliates of the CLC, with a total membership of 1,181,100, included 110 national and international unions and 162 directly chartered locals. International unions comprised 84 p.c. of the total CLC membership and national unions, including directly chartered locals, for the remainder. There were 13 federations (with 640 locals) in the CNTU at the beginning of 1965. These, together with the 54 non-federated locals of the CNTU, comprised a total membership of 150,100, an increase of 71 locals and 28,500 members over the 1964 figure.

International unions with branches in both Canada and the United States had a total membership of 1,124,700 or 71 p.c. of the total. Of the 110 international unions active in Canada, 89 were affiliated with the AFL-CIO and the CLC; eight were affiliates of the AFL-CIO only, and three were affiliated with the CLC only; there were two unaffiliated railway unions and eight other unaffiliated unions. The membership of 52 national unions in 1965 stood at 389,700. CLC affiliates among these had 166,000 members, or 43 p.c. CNTU-affiliated unions had 37 p.c. of the total membership of national unions and there were 21 unaffiliated national unions with 81,200 members.

CLC directly chartered locals numbered 162 with 19,100 members; the 54 non-federated locals of the CNTU had 7,500 members. The 138 independent local organizations covered by the survey had 47,600 members.

27.—Union Membership, by Type of Union and Affiliation, as at January 1965

Type and Affiliation	Unions	Locals	Membership
	No.	No.	No.
International Unions	110	4,680	1,124,741
AFL - CIO/CLC.....	89	4,207	982,748
CLC only.....	3	47	13,291
AFL - CIO only.....	8	12	17,555
Unaffiliated railway brotherhoods.....	2	119	8,789
Other unaffiliated unions.....	8	295	102,358
National Unions	52	2,593	389,746
CLC.....	18	1,592	165,984
CNTU.....	13	640	142,522
Unaffiliated unions.....	21	361	81,240
Directly Chartered Local Unions	216	216	26,655
CLC.....	162	162	19,124
CNTU.....	54	54	7,531
Independent Local Organizations	138	138	47,613
Grand Totals	516	7,627	1,558,755

A complete list of the individual international and national unions, with number of locals and membership in Canada, is carried in the annual Department of Labour publication *Labour Organizations in Canada*, available from the Queen's Printer, Ottawa, price 50 cents.

Section 8.—Strikes and Lockouts

Statistical information on strikes and lockouts in Canada is compiled by the Economics and Research Branch of the Department of Labour on the basis of reports from the National Employment Service. Table 28 covers strikes and lockouts lasting ten man-days or more. The developments leading to work stoppages are often too complex to make it practicable to distinguish statistically between strikes on the one hand and lockouts on the other. However, a work stoppage that is clearly a lockout is not often encountered.

The number of workers involved includes all workers reported on strike or locked out, whether or not they all belonged to the unions directly involved in the disputes leading to work stoppages. Workers indirectly affected, such as those laid off as a result of a work stoppage, are not included. Duration of strikes and lockouts in terms of man-days is calculated by multiplying the number of workers involved in each work stoppage by the number of working days the stoppage was in progress. The duration in man-days of all work stoppages in a year is also shown as a percentage of estimated working time, based on the annual average of all non-agricultural paid workers in Canada. The data on duration of work stoppages in man-days are provided to facilitate comparison of work stoppages in terms of a common denominator. They are not intended as a measure of the loss of productive time to the economy.

28.—Strikes and Lockouts, by Industry, 1964 with Totals for 1960-64

NOTE.—Comparable statistics, except for 1961, are given in the corresponding table of previous Year Books; the latter are available in the Department of Labour annual publication *Strikes and Lockouts in Canada*.

Industry	Strikes and Lockouts Beginning during Year	Strikes and Lockouts in Existence during Year		
		Strikes and Lockouts	Workers Involved	Duration in Man-Days
	No.	No.	No.	No.
Agriculture	1	1	380	4,720
Forestry	5	5	1,162	12,150
Mines	11	12	6,560	69,640
Metal.....	4	5	2,713	63,680
Mineral fuels.....	7	7	3,847	5,960
Manufacturing	154	161	63,689	1,190,810
Food and beverages.....	14	14	1,090	6,420
Rubber.....	2	2	257	15,110
Leather.....	2	2	193	9,880
Textiles.....	7	7	1,474	3,730
Clothing.....	5	5	583	11,140
Wood.....	11	12	5,584	151,530
Furniture and fixtures.....	1	1	78	2,890
Paper.....	8	9	963	28,740
Printing and publishing.....	10	11	2,292	293,770
Primary metals.....	10	10	5,097	34,330
Metal fabricating.....	16	17	2,058	38,500
Machinery.....	6	8	742	13,790
Transportation equipment.....	19	19	35,876	458,730
Electrical products.....	20	20	4,007	93,920
Non-metallic mineral products.....	10	10	1,564	10,580
Petroleum and coal products.....	1	2	257	1,070
Chemical products.....	7	7	1,199	6,990
Miscellaneous manufacturing.....	5	5	375	3,690
Construction	80	81	10,181	91,890
Transportation and Utilities	33	34	8,558	58,470
Transportation.....	28	28	8,259	56,430
Storage.....	1	1	109	603
Communication.....	2	2	109	270
Power, gas and water.....	2	3	81	1,170
Trade	28	33	5,173	116,570
Finance	1	1	13	50
Service	10	11	2,728	16,120
Education.....	2	2	1,053	11,130
Health and welfare.....	1	2	1,443	1,730
Services to business.....	1	1	5	120
Personal services.....	4	4	200	3,020
Miscellaneous services.....	2	2	27	120
Public Administration (local)	4	4	2,091	20,130
Totals	1964	327	343	100,535
.....	1963	318	332	83,428
.....	1962	290	311	74,332
.....	1961	272	287	97,959
.....	1960	268	274	49,408
				738,700

Section 9.—Canada and the International Labour Organization

The Department of Labour is the officially designated liaison between the Government of Canada and the International Labour Organization. The ILO was established in 1919, in association with the League of Nations under the Treaties of Peace, with the object of improving labour and social conditions throughout the world by international negotiations, legislative action and other means. Under an agreement approved by the General Con-

ference of the International Labour Organization and by the United Nations General Assembly in 1946, the Organization became a specialized agency of the United Nations, although it retained its autonomy.

The ILO is an association of 114 Member States, financed by their governments and democratically controlled by representatives of those governments and of their organized employers and workers. It is comprised of three main organs—the Governing Body, the International Labour Conference, and the International Labour Office.

The Governing Body consists of 48 members—24 government representatives, 12 employers' representatives and 12 workers' representatives. Of the government seats, each of the 10 Member States of chief industrial importance (of which Canada is one) holds a permanent place and the other 14 government representatives are elected triennially by the Conference. The worker and employer members are elected by their groups every three years at the same Conference. The Governing Body, which usually meets three times a year, supervises the work of the International Labour Office and co-ordinates the programs of the various conferences and committees, in addition to framing the budget and approving the agendas of the conferences and meetings. One main subject being discussed by the Governing Body in 1965 is the modernization of ILO programs and structure required to meet current world problems. Canada's government representative on the Governing Body is the Deputy Minister of Labour for Canada; there are also elected employer and worker representatives from Canada on the Governing Body.

The International Labour Conference is a world assembly for the discussion of labour and social problems. It meets annually and is attended by four delegates from each Member State (two representing the government, one representing the employers and one representing the workers) accompanied by technical advisers. The Conference formulates international standards concerning working and living conditions in the form of Conventions (which are subject to ratification by the Member States concerned) and Recommendations (which are guides for framing legislation and regulations). Canada is represented at each annual conference and most of the special meetings, and accounts of the discussions and decisions are regularly published in the *Labour Gazette*.

There have been 49 sessions of the International Labour Conference up to 1965, at which 124 Conventions and 125 Recommendations have been adopted. Canada has ratified 21 of these Conventions, of which 12 concern maritime and dock labour. The most recent Convention to be ratified by Canada was No. 111 prohibiting discrimination in employment and occupation. As 1965 is International Co-operation Year, an intensive study is being made of the whole range of Conventions in co-operation with the provinces, to ascertain the possibility of ratifying some others. The Department of Labour is responsible for forwarding to the ILO annual reports on ratified Conventions as well as periodic reports on many other industrial and social matters.

The International Labour Office acts as the permanent secretariat of the ILO, and as a world research and information centre and publishing house on subjects concerned with working and living conditions. In the operational field it assists Member States by furnishing experts on manpower training and other types of technical assistance. The ILO maintains branch offices in all parts of the world; the Canada Branch is located at 202 Queen Street, Ottawa.

Ten tripartite industrial committees have been established to deal with problems of important world industries. By the holding of regional and special technical conferences, and by technical assistance to aid under-developed countries in such fields as co-operatives, social security, vocational training, productivity techniques and employment service organization, the ILO aids in the development of improved economic and social conditions in these areas. The ILO also administers numerous technical aid projects in developing countries on behalf of the United Nations Special Fund and the Expanded Programme of Technical Assistance (see also pp. 165-166).

CHAPTER XIX.—TRANSPORTATION

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

The physiographic and population characteristics of Canada present unusual difficulties from the standpoint of transportation. The country extends 4,000 miles from east to west and its main topographic barriers run in a north-south direction, so that sections of the country are cut off from one another by such water barriers as Cabot Strait and the Strait of Belle Isle separating the Island of Newfoundland from the mainland; by rough, rocky forest terrain such as the New Brunswick-Quebec border region and the areas north of Lakes Huron and Superior dividing the industrial region of Ontario and Quebec from the agricultural areas of the Prairie Provinces; and by the mountain barriers between the prairies and the Pacific Coast. Unevenly distributed along a narrow southern strip of Canada's vast area is its relatively small population of 19,571,000 (estimate of June 1, 1965). To such a country, with a population so dispersed and producing for export as well as for consumption in distant parts of the country itself, efficient and economical transportation facilities are necessities of existence.

A special article giving some idea of the competitive problems that have faced the major agencies of transport during recent years of economic and technological change appears in the 1962 Year Book at pp. 753-758. Also, a special article on operational and technological changes in rail transport appears in the 1965 edition at pp. 755-761.

PART I.—GOVERNMENT CONTROL OVER AGENCIES OF TRANSPORTATION

The Federal Government's control and regulation of transportation reflect to a considerable extent conditions that date back to the period when the railways possessed a virtual monopoly of transportation within the country. Although federal regulation was

a direct outcome of such particular matters as the prevention of unjust discrimination in rates and charges resulting from monopoly conditions in the industry and the safety of transportation facilities and operating practices, yet the railways have been so involved in the public interest that their regulation has been extended to become the most comprehensive of any industry in Canada.

In the meantime, conditions in the transportation industry have been drastically altered by the increasing competition arising from the advance of highway, air and pipeline transportation and a large part of the present competition between common carriers has become a permanent feature of the transportation industry. In these circumstances, it is not surprising that regulations, which under monopoly conditions were not onerous to the railways or were purely nominal in their effect, are now alleged to have become increasingly restrictive and hampering under highly competitive conditions. Regulatory authorities are therefore faced with the problem of piecemeal revision of their regulations—retaining those where railway monopoly or near-monopoly conditions still make them necessary in the public interest, and relaxing those where competition can be relied on to protect the public in order to enable the railways to meet this competition more effectively. The emphasis has shifted from the regulation of monopoly to maintaining a balance between the several competing modes of transport.

The federal Department of Transport and the Crown agencies reporting to Parliament through the Minister of Transport have jurisdiction over railways, canals, harbours, shipping and civil aviation (see p. 128). Road and highway development is mainly under provincial or municipal control or supervision. Jurisdiction over interprovincial and international highway transport rests with the Federal Government, but the Motor Vehicle Transport Act, 1954 gives to all provinces, at their option, the authority to apply to interprovincial and international highway transport the same regulations respecting certificates of public convenience and necessity and rates as they apply to undertakings operating entirely within the province. This Act has since been proclaimed in all provinces except Newfoundland.

The Board of Transport Commissioners for Canada.—The Board of Transport Commissioners for Canada was created and initially named the Board of Railway Commissioners for Canada by the Railway Act, 1903, and was given its present name by the Transport Act, 1938. It was organized on Feb. 1, 1904 and succeeded to all the powers and duties of its predecessor, the Railway Committee of the Privy Council. The Board, now consisting of a Chief Commissioner, a Deputy Chief Commissioner, an Assistant Chief Commissioner and three Commissioners, has extensive regulative and administrative powers and is also a statutory court of record, so constituted by the Railway Act and recognized as such by other courts. The finding or determination of the Board upon any question of fact within its jurisdiction is binding and conclusive and no order or decision may be questioned or reviewed except on appeal to the Supreme Court of Canada upon a question of law or a question of jurisdiction with leave of a judge of that Court, or by the Governor in Council.*

The Board has jurisdiction under more than a score of Acts of Parliament, including jurisdiction, under the Railway Act and the Transport Act, over transportation by railway and by inland water, and over communication by telephone and telegraph.

Under the Railway Act its jurisdiction is, stated generally, in respect of construction, maintenance and operation of railways that are subject to the legislative authority of the

* The Board's judgments are reported in *Canadian Railway Cases* and *Canadian Railway and Transport Cases*, and its judgments, orders, rulings and regulations are published by the Queen's Printer, Ottawa, in what is known as *J.O.R. & R.*

Parliament of Canada, including matters of engineering, location of lines, crossings and crossing protection, safety of train operation, operating rules, investigation of accidents, accommodation for traffic and facilities for service, abandonment of operation, freight and passenger rates, and uniformity of railway accounting. The Board also has certain jurisdiction over telephones and telegraphs, including regulation of the telephone tolls of The Bell Telephone Company of Canada, the British Columbia Telephone Company, the Bonaventure and Gaspé Telephone Company and the Yellowknife Telephone Company, and over tolls for express traffic and for the use of international bridges and tunnels.

Regulation of railway freight and passenger rates is one of the Board's principal tasks. Except for certain statutory rates, it has power "to fix, determine and enforce just and reasonable rates, and to change and alter rates as changing conditions or cost of transportation may from time to time require"; it may disallow any tariff that it considers to be unjust or unreasonable or contrary to any provision of the Railway Act; it may prescribe other tolls in lieu of the tolls disallowed, or require the railway company to substitute a tariff satisfactory to the Board. During the past decade there has been a succession of applications for authority to make general freight rate increases and general telephone rate increases.

Under the Transport Act, the Board entertains applications for licences for ships to transport goods or passengers for hire or reward between places in Canada on the Great Lakes and the Mackenzie and Yukon Rivers, except goods in bulk on waters other than the Mackenzie River. Before granting a licence, the Board must be satisfied that public convenience and necessity require such transport. The Board also has regulative powers over tolls for such transport.

A review of transport regulation was undertaken by the Royal Commission on Transportation, under the chairmanship of the Hon. W. F. A. Turgeon, which held extensive hearings in 1949-50 and issued its Report in 1951 (see 1952-53 Year Book, p. 741). Certain of its recommendations were incorporated into the Railway Act by amendments made in 1951 (see 1962 Year Book, p. 760).

A Royal Commission was appointed May 13, 1959 with the Hon. C. P. McTague named as chairman (later succeeded by M. A. MacPherson) to inquire into the railway rate structure and other matters affecting transportation. Its findings were published in three volumes, which appeared between March 1961 and July 1962. Pending the results of this inquiry, the enactment of the Freight Rates Reduction Act, 1959 and later amendments gave some relief to shippers by providing the finances necessary to permit the reduction of freight rates and the payment of compensation to the railways for maintenance of their rates on freight traffic at the reduced levels (see 1963-64 Year Book, pp. 752-753). Legislation based on the findings of the MacPherson Royal Commission was still before the House of Commons in December 1965.

The Air Transport Board.—The Air Transport Board was established in September 1944 by amendment to the Aeronautics Act. Subsequent amendments to the Act were made in 1945, 1950 and 1952. The Board has three members including the Chairman and Vice Chairman and the staff is comprised of a Senior Adviser; a Legal Branch; an Operations Branch which includes a Traffic Division, an Operations Analyst, an International Relations Division, and a Licensing and Inspection Division; an Economics and Accounting Branch which includes an Economics Division, an Audit Division and a Financial Analyst; and a Secretary's Branch which includes an Administrative Division.

The Board is responsible for the economic regulation of commercial air services in Canada and is also required to advise the Minister of Transport in the exercise of his duties and powers in all matters relating to civil aviation. The regulatory function relates to Canadian air services within Canada and abroad and to foreign air services operating into and out of Canada. It involves the licensing of all such services and the subsequent regulation of the licensees in respect of their economic operation and the provision of service to the public. As provided by the Act, the Board issues Regulations, approved by the Governor in Council, dealing with the classification of air carriers and commercial air services, applications for licences to operate commercial air services, accounts, records and reports, ownership, transfers, consolidations, mergers and leases of commercial air services, traffic tolls and tariffs, and other related matters. Detailed regulatory instructions are issued by the Board in the form of General Orders and Rules relating to all air services or groups of air services; Board Orders relating to individual air services; and Circulars for general guidance and information. The Board continues to work toward the consolidation of its over-all regulations and the procedures governing applications for licence are being examined for improved processing methods.

The Board takes an active part in the work of the International Civil Aviation Organization and, when appropriate, undertakes bilateral negotiations for the exchange of traffic rights. At present, Air Canada, Canadian Pacific Airlines Limited and TransAir Limited are Canada's designated international scheduled carriers although the latter does not operate as such.

The Canadian Maritime Commission.—The Canadian Maritime Commission was established by Act of Parliament in 1947 (RSC 1952, c. 38) as a separate department of the Government reporting to Parliament through the Minister of Transport. It is the function of the Commission to "consider and recommend to the Minister from time to time such policies and measures as it considers necessary for the operation, maintenance, manning and development of a merchant marine and a ship-building and ship-repairing industry commensurate with Canadian maritime needs". The Commission is authorized to examine into, ascertain and keep records of all phases of ship operation and to "administer, in accordance with regulations of the Governor in Council, any steamship subventions voted by Parliament".

The Commission administers the Ship Construction Assistance Regulations enacted by Order in Council PC 1961-1290 of Sept. 8, 1961, as amended. The Regulations authorize the payment of direct subsidies for the construction of commercial ships and fishing vessels in Canadian shipyards. The Commission also administers the Canadian Vessel Construction Assistance Act (RSC 1952, c. 43) which allows shipowners to benefit from accelerated depreciation and, under given circumstances, from tax relief.

Subsidies are paid by the Federal Government for the maintenance of essential steamship services; the services and the amounts paid for the years ended Mar. 31, 1964 and 1965 are given on pp. 808-809.

The National Energy Board.—The National Energy Act (SC 1959, c. 46) proclaimed Nov. 1, 1959, provided for the establishment of a five-member Board charged with the duty of assuring the best use of energy resources in Canada. In the performance of this function, the Board is responsible for the regulation of the construction and operation of the oil and gas pipelines that are under the jurisdiction of the Parliament of Canada, the tolls charged for transmission by oil and gas pipeline, the export and import of gas and the export of electric power, and the construction of the lines over which such power is transmitted. The functions and operations of the Board are covered in the Domestic Trade and Prices Chapter of this volume, Part II, Section 4.

PART II.—RAIL TRANSPORT*

Section 1.—Railways†

Since Confederation the railways of Canada have been the principal transport facility throughout, and beyond, the nation. The two great transcontinental systems, supplemented by a major north-south line on the West Coast and a number of regional independent railways, are the only carriers able to transport large volumes of freight at low cost in all weather by continuous passage over Canadian transcontinental routes.

The two national railway companies control a wide variety of Canadian and international transport and communications services. The government-owned Canadian National Railway System is the country's largest public utility and operates the greatest length of trackage in Canada. It is the only railway serving all ten provinces and has completed a branch line to serve the Great Slave Lake area of the Northwest Territories. In addition, it operates a highway service, a fleet of coastal steamships, an extensive express service, a chain of large hotels and resorts, and a scheduled air service connecting all major cities across the country and Canadian with other North American and European points. The Canadian National, jointly with the Canadian Pacific Railway Company, operates a national telecommunications system that employs modern microwave, high-speed teletype and private wire networks, telex, data and weather facsimile transmission and movement of telegrams to any point in the world. The Canadian Pacific Railway Company is a joint-stock corporation also operating a transcontinental railway, an express service, a domestic truck and bus network, a fleet of inland, coastal and ocean-going vessels, a chain of year-round and resort hotels, a domestic airline servicing points in British Columbia, Alberta and Yukon Territory, a transpacific airline service to the Orient and the Antipodes, air services to Mexico, Peru, Chile and Argentina, a transpolar air route connecting Vancouver and Amsterdam, a transatlantic service to Portugal, Spain and Italy, and a limited (one flight daily) transcontinental air service between Vancouver and Montreal.

The Pacific Great Eastern Railway, owned by the British Columbia Government, operates over a 789.5-mile route from North Vancouver to Fort St. John in the Peace River area of northeastern British Columbia, with a branch line from Chetwynd to Dawson Creek. The completion in 1958 of the northern section of this line opened up to development the vast interior of the province and brought to an end the largest railway construction job undertaken in North America for two decades. The PGE was the first railway on the Continent to be operated entirely by means of radio communication. Several northern extensions of this line are under construction or are in the planning stage.

Subsection 1.—Milage and Equipment

Construction was begun in 1835 on the first railway in Canada—the short link of 14.5 miles between Laprairie and St. Johns, Que.—but only 66 miles were in operation by 1850. The first great period of construction was in the 1850's when the Grand Trunk and the Great Western Railways were built as well as numerous smaller lines. The building of the Intercolonial and the Canadian Pacific railways contributed to another period of rapid expansion in the 1870's and 1880's. In the last period of extensive railway building (1900-17), the Grand Trunk Pacific, National Transcontinental and Canadian Northern Railways were constructed.

There has been little change in total track milage since the 1920's. The milage peak was reached in 1959 and there has since been a gradual decline, new construction being more than offset by abandonment of unprofitable lines. In recent years, the development of a number of large projects in districts far removed from transport facilities and the opening up of the Northwest Territories have necessitated the building of branch lines. Those completed up to 1956 are listed in the 1957-58 Year Book, p. 815, and those completed

* The statistical data in this Part were revised in the Public Finance and Transportation Division, Dominion Bureau of Statistics; more detailed information is given in the annual reports of the Division.

† A special article on operational and technological changes in rail transport appears in the 1965 Year Book at pp. 755-761.

from that year to 1963 are mentioned in subsequent editions. During 1964, the CNR completed construction of the 430-mile Great Slave Lake Railway which extends 377 miles from Roma, near Grinshaw, in Alberta to Hay River in the Northwest Territories with a 53-mile branch line to Pine Point mines. Also completed by the CNR was a 15-mile line from Nepisiquit Junction to the property of Brunswick Mining and Smelting Corporation in New Brunswick. In October 1965, announcement was made of the construction of a 100-mile railway in northwestern Alberta, extending northwesterly from a point on the CNR main line west of Hinton to the rich resources area of Smoky River. Construction will be financed by an Alberta Crown corporation but supervised by the CNR. The line will be completed by the end of 1967 and will be leased to the CNR for operation on a tonnage-rental basis. The 78-mile Fort St. James extension of the Pacific Great Eastern Railway in British Columbia was nearing completion in late 1965 and an additional 64-mile extension to Takla Lake was in the survey stage; surveying was completed on a 21-mile extension from Kennedy to Morfee Lake and on a 50-mile extension from Fort St. John to Beaton River, the latter being the first step of a projected 200-mile line running northwest to Fort Nelson.

1.—Railway Track Mileage Operated, 1900-64

NOTE.—Figures of total mileage of first main track operated for 1835-1909 are given in the 1941 Year Book, p. 546; for 1911-14 in the 1954 edition, p. 786; for 1916-24 in the 1955 edition, p. 830; and for 1926-49 in the 1956 edition, p. 792.

FIRST MAIN TRACK MILEAGE		TRACK MILEAGE BY AREA AND TYPE				
Year	Miles in Operation	Area and Type of Track	1961	1962	1963	1964
	No.		No.	No.	No.	No.
1900.....	17,657	First Main—				
1905.....	20,487	Newfoundland.....	933	935	934	934
1910.....	24,731	Prince Edward Island.....	279	279	279	279
1915.....	34,882	Nova Scotia.....	1,298	1,270	1,315	1,314
1920.....	38,805	New Brunswick.....	1,783	1,782	1,771	1,760
1925.....	40,350	Quebec.....	5,224	5,349	5,361	5,163
1930.....	42,047	Ontario.....	10,188	10,137	10,117	10,073
1935.....	42,916	Manitoba.....	4,954	4,897	4,860	4,858
1940.....	42,565	Saskatchewan.....	8,606	8,588	8,577	8,566
1945.....	42,352	Alberta.....	5,689	5,683	5,683	5,682
1950 ¹	42,979	British Columbia.....	4,338	4,337	4,329	4,329
1951.....	42,956	Yukon Territory.....	58	58	58	58
1952.....	42,953	United States.....	339	339	339	339
1953.....	43,163					
1954.....	43,132	Totals, First Main.....	43,689	43,654	43,623	43,355
1955.....	43,444					
1956.....	43,652					
1957.....	43,890	Second main.....	2,150	2,081	2,016	2,010
1958.....	44,125	Other main.....	48	48	56	56
1959.....	44,209	Industrial.....	1,262	1,266	1,265	1,281
1960.....	44,029	Yard and sidings.....	11,633	11,710	11,551	11,541
1961.....	43,689					
1962.....	43,654					
1963.....	43,623					
1964.....	43,355	Grand Totals ²	58,782	58,759	58,511	58,243

¹ Newfoundland included from 1950.
61 miles in 1963 and 58 miles in 1964.

² Excludes joint track amounting to 53 miles in 1961, 55 miles in 1962,

Rolling-Stock.—Table 2 shows the numbers of the various types of freight and passenger equipment in operation in 1959 and in 1964, revealing a generally downward trend over the period; however, these figures do not reflect the offsetting trend toward larger, more efficient cars and locomotives or the steady improvement in speed of movement facilitated by modernized handling and terminal services. Each year hundreds of units, particularly freight cars, are converted and modified to make them suitable for specific types of traffic or are replaced by special-purpose equipment designed for distinctive hauling jobs. The average capacity of all freight cars was 53.3 tons in 1964 compared with 51.1 tons in 1959. Also, although the number of diesel-electric locomotives in service has remained

fairly static over this period, it should be noted than an extensive program of power up-grading has been followed by the railway companies. The combined tractive effort (the force exerted by powered equipment measured at the rim of the driving wheels) of all locomotives in 1964 averaged 58,216 lb. as compared with 53,368 lb. in 1959.

2.—Railway Rolling-Stock in Operation as at Dec. 31, 1959 and 1964

Type	1959	1964	Type	1959	1964
	No.	No.		No.	No.
Locomotives	4,720	3,304	Freight Cars	194,512	179,854
Steam—			Automobile.....	7,270	6,907
Coal-burning.....	1,143	1	Ballast.....	3,140	2,977
Oil-burning.....	371	—	Box.....	114,181	103,108
Diesel-electric.....	3,155	3,281	Flat.....	12,270	12,755
Electric.....	51	22	Gondola.....	20,428	19,046
Passenger Cars	5,456	3,955	Hopper.....	15,601	16,981
Coach.....	1,409	1,037	Ore.....	5,964	5,977
Combination.....	182	131	Refrigerator.....	10,155	7,555
Colonist.....	96	46	Stock.....	5,025	3,281
Dining.....	159	137	Tank.....	455	526
Parlour.....	142	135	Other.....	23	741
Sleeping.....	919	645			
Baggage, express and postal.....	2,353	1,721	Privately Owned Cars¹	4,853	5,632
Self-propelled.....	128	100	Tank.....	4,809	5,484
Other.....	67	33	Other.....	44	148

¹ Includes those of non-rail industrial firms such as oil, chemical and railway car leasing companies which furnish freight cars to, or on behalf of, any railway line.

Subsection 2.—Passenger and Freight Traffic

Table 3 shows passenger and freight statistics for all railways for the years 1960-64. A separate analysis of the operations and traffic of the Canadian National Railways is given at pp. 767-769.

3.—Statistics of Passenger and Freight Service and Revenue, 1960-64

Item	1960	1961	1962	1963	1964
Passenger Service					
Revenue passenger-train miles ¹	'000 34,493	31,131	29,217	28,239	28,631
Passenger-train car miles ¹	" 344,996	311,912	296,950	285,942	308,941
Passengers carried ²	" 19,497	18,734	19,258	20,636	22,915
Passenger-miles.....	" 2,263,795	1,960,591	2,018,842	2,069,565	2,681,234
Passenger-miles per mile of line.....	No. 50,212	43,631	45,048	46,260	60,444
Average receipts per passenger-mile.....	cts. 3.05	3.12	3.00	2.88	2.58
Average receipts per passenger.....	\$ 3.55	3.26	3.15	2.89	2.78
Average passenger journey.....	miles 116	104	105	100	117
Average passengers per train.....	No. 66	63	69	73	94
Passenger-train revenue per passenger-train mile.....	\$ 3.46	3.32	3.56	3.51	3.64
Freight Service					
Revenue freight-train miles.....	'000 63,887	60,593	60,308	62,639	66,785
Revenue freight-train car miles ³	" 3,249,824	3,234,586	3,256,175	3,465,076	3,768,687
Freight carried ⁴	'000 tons 158,466	153,202	164,112	172,897	190,160
Freight ton-miles.....	'000 65,444,784	65,828,403	67,937,162	75,796,023	85,032,999
Freight ton-miles per mile of line.....	" 1,451	1,464	1,516	1,694	1,917
Freight receipts per ton per mile.....	cts. 1.52	1.54	1.50	1.41	1.37
Receipts per ton hauled.....	\$ 6.26	6.62	6.34	6.21	6.17
Average length of freight haul.....	miles 413	430	422	441	448
Average train load, revenue tons.....	No. 1,024	1,086	1,127	1,210	1,273
Average load per loaded car mile.....	tons 33.11	33.79	34.71	36.81	37.92
Revenue per freight-train mile.....	\$ 15.54	16.72	16.91	17.04	17.51

¹ Includes express, baggage, mail and other cars.

² Duplications included.

³ Includes caboose

miles but excludes miles made in passenger and non-revenue trains.

⁴ Excludes traffic handled by more than one railway; see Table 4 for details of freight carried.

The total tonnage of revenue freight carried (including national loadings and receipts from United States rail connections) was 10.5 p.c. higher in 1964 than in 1963. All the main commodity groups showed increases over the previous year. Of the 189,696,385 tons carried in 1964 (excluding freight handled by more than one railway and in intermediate switching), mine products accounted for 39.7 p.c., manufactures and miscellaneous products for 30.8 p.c., agricultural products 18.8 p.c., forest products 9.3 p.c., animal products 0.9 p.c., and less-than-carload freight for 0.5 p.c.; in 1963 the proportions were 41.8 p.c., 30.3 p.c., 17.1 p.c., 9.3 p.c., 0.9 p.c. and 0.6 p.c., respectively.

4.—Commodities Hauled as Freight by Railways, 1960-64

NOTE.—In this table duplications are eliminated, i.e., the same freight handled by two or more railways is counted only once. The statistics do not include the United States lines of the Canadian National Railways, but the link of the Canadian Pacific Railway line across Maine, U.S.A., is included, as are the Canadian sections of United States railways.

Commodity	1960	1961	1962	1963	1964
	tons	tons	tons	tons	tons
Agricultural Products	26,666,459	28,012,441	25,177,337	29,303,974	35,686,429
Wheat.....	13,293,302	15,155,289	13,403,510	16,311,535	21,154,965
Oats.....	1,185,626	982,668	935,985	1,556,288	1,229,384
Other grain.....	4,292,962	4,308,532	3,600,003	3,833,293	4,088,838
Flour, wheat.....	1,639,965	1,480,964	1,504,838	1,545,738	1,859,599
Other mill products.....	1,659,275	1,697,726	1,489,866	1,593,722	2,253,443
Other agricultural products.....	4,594,329	4,387,262	4,243,135	4,463,398	5,100,200
Animal Products	1,695,451	1,619,212	1,508,284	1,529,037	1,664,139
Livestock.....	430,234	442,932	376,700	321,688	362,705
Meats and other edible packing-house products.....	781,520	643,429	616,458	694,946	693,787
Other animal products.....	483,697	532,851	515,126	512,403	607,647
Mine Products	65,541,195	61,388,644	68,236,842	71,828,970	75,242,381
Coal, anthracite.....	1,378,104	1,148,868	1,011,993	962,083	790,245
Coal, bituminous, subbituminous, lignite.....	11,259,474	10,461,389	10,184,111	10,002,904	10,449,727
Coke.....	1,582,395	1,571,791	1,356,092	1,394,295	1,764,196
Ores and concentrates.....	28,386,836	26,287,337	32,251,656	35,062,361	35,069,447
Sand and gravel.....	6,308,623	5,793,376	6,258,480	6,513,801	7,870,785
Stone (crushed, ground, broken).....	5,952,700	5,237,255	5,017,049	5,430,004	5,387,391
Other mine products.....	10,673,063	10,888,628	12,157,461	12,463,522	13,910,590
Forest Products	14,969,197	14,491,704	15,441,325	15,927,443	17,731,444
Logs, posts, poles, piling and ties.....	2,592,553	2,127,041	2,660,613	2,701,234	2,952,676
Cordwood and other firewood.....	16,077	11,595	11,855	9,185	8,764
Pulpwood.....	4,794,373	4,574,296	4,867,930	4,857,912	6,026,932
Lumber, timber, box, crate and cooperage material.....	6,411,739	6,443,645	6,663,521	6,982,751	7,284,664
Other forest products.....	1,145,455	1,335,127	1,247,406	1,376,381	1,458,408
Manufactures and Miscellaneous	48,285,917	46,378,066	49,342,838	52,062,773	58,413,648
Gasoline and petroleum products.....	7,851,365	6,887,884	6,962,657	7,647,090	8,124,687
Iron and steel (bar, sheet, structural, pipe).....	3,986,862	3,637,000	3,709,838	4,056,599	5,472,140
Automobiles, trucks and parts.....	1,998,474	1,673,124	2,003,748	2,142,845	2,278,802
Newsprint.....	4,236,852	4,397,864	4,232,493	4,121,218	4,497,987
Wood pulp.....	2,518,188	2,688,225	3,048,415	3,186,693	3,431,137
Other manufactures and miscellaneous.....	27,694,176	27,093,969	29,385,687	30,908,328	34,608,895
Less-than-Carload Lots	1,312,915	1,190,250	1,223,715	1,083,429	958,344
Grand Totals	158,462,134	153,080,317	160,930,341	171,735,626	189,696,385

Railway Accidents.—Accidents shown in Table 5 include all those in which railway trains were involved and accidents on railway property; all passengers injured are included but, for employees, only those who were kept from work for at least three days during the

10 days following the accident are recorded. The classification of accidents used in reporting other DBS statistics treats collisions between motor vehicles and trains as motor vehicle accidents. Therefore, care should be exercised when compiling total accidental deaths of all kinds or when comparing results of accidents of different kinds, such as train and motor vehicle.

5.—Persons Killed or Injured on Railways, by Specified Cause, 1962-64

Class of Person and Description of Accident	1962		1963		1964	
	Killed	Injured	Killed	Injured	Killed	Injured
ACCIDENTS RESULTING FROM MOVEMENT OF TRAINS, LOCOMOTIVES OR CARS						
	No.	No.	No.	No.	No.	No.
Class of Person—						
Passengers.....	—	106	2	157	8	138
Employees.....	19	877	23	853	23	1,078
Trespassers.....	72	57	43	45	61	42
Non-trespassers.....	161	414	158	517	159	493
Postal clerks, expressmen, etc.....	1	11	—	15	—	18
Totals.....	253	1,465	226	1,587	251	1,769
Description of Accidents (Employees and Passengers only)—						
Coupling and uncoupling.....	1	50	—	40	—	45
Collisions.....	—	83	4	50	11	79
Derailments.....	1	30	3	82	1	18
Locomotives or cars breaking down.....	1	7	—	—	—	9
Falling from trains or cars.....	2	37	4	41	1	59
Getting on or off trains.....	1	211	7	231	2	284
Struck by trains, etc.....	3	11	6	14	10	15
Overhead and other obstruction.....	—	18	—	16	—	9
Other causes.....	10	536	1	536	6	698
Totals.....	19	983	25	1,010	31	1,216
ALL OTHER ACCIDENTS						
	No.	No.	No.	No.	No.	No.
Class of Person—						
Stationmen.....	2	431	2	514	3	581
Shopmen.....	2	558	1	457	2	468
Trackmen.....	6	642	4	680	4	612
Other employees.....	4	359	3	261	1	393
Passengers.....	—	64	—	55	—	72
Others.....	6	62	1	39	2	77
Totals.....	20	2,116	11	2,006	12	2,203

Subsection 3.—Finances

The tables in this Subsection give information on capital liability and capital investment, earnings, operating expenses, employees and their earnings and government aid to all railways.* Financial statistics of government-owned railways are given separately and in detail in Subsection 4. A Uniform Classification of Accounts for common carriers became effective for the Canadian National and the Canadian Pacific Railways on Jan. 1, 1956, and for all other common carrier railways on Jan. 1, 1957. In transportation statistics a distinction is made between expenditures and expenses. In this Subsection, the term 'expenses' is used as defined in the Uniform Classification of Accounts and refers to the expenses of furnishing rail transportation service and of operations incident thereto, including maintenance and depreciation of the plant used in such service.

Capital Liability and Investment.—The capital liability of railways operating in Canada for the years 1955 to 1964 is shown in Table 6. The increase of \$22,001,955 in 1964 over 1963 compares with an increase in investment in road and equipment property of \$813,602 as shown in Table 7.

* Statistics for individual railways are given in DBS annual report *Railway Transport*, published in six parts (Catalogue Nos. 52-207—52-212).

6.—Capital Liability of Railways, 1955-64

NOTE.—Figures from 1876 will be found in the corresponding table of previous Year Books beginning with the 1927-28 edition.

(Exclusive of Canadian railway capital owned by Canadian railways)

Year	Stocks	Funded Debt	Total ¹	Year	Stocks	Funded Debt	Total ¹
	\$	\$	\$		\$	\$	\$
1955.....	2,543,465,586	1,565,109,030	4,108,574,616	1960.....	2,725,827,684	2,244,571,812	4,970,399,496
1956.....	2,572,487,313	1,612,706,551	4,185,193,864	1961.....	2,748,537,919	2,234,316,735	4,982,854,654
1957.....	2,565,559,683	1,764,660,210	4,330,219,893	1962.....	2,769,152,492	2,245,189,028	5,014,341,520
1958.....	2,646,659,697	1,953,114,826	4,599,774,523	1963.....	2,791,044,973	2,183,556,139	4,974,601,112
1959.....	2,669,062,269	2,122,675,213	4,791,737,482	1964.....	2,815,148,215	2,181,454,852	4,996,603,067

¹ Exclusive of approximately \$40,000,000 railway debt in Newfoundland.

7.—Capital Invested in Railway Road and Equipment Property, 1960-64

Investment	1960	1961	1962	1963	1964
	\$	\$	\$	\$	\$
Road.....	113,587,736	72,244,687	70,674,769	125,463,519	74,388,731
Equipment.....	Cr. 12,920,826	Cr. 30,683,878	7,258,657	Cr. 16,753,029	40,089,021
General.....	Cr. 35,546	3,152,244	243,729	84,786	45,989
Undistributed.....	6,742,707	40,971,544	12,905,861	Cr. 2,626,787	Cr. 7,538,650
CNR non-rail property....	6,538,741	15,606,157	10,513,908	3,771,974	7,219,816
CPR " ".....	122,830	25,492,752	2,581,950	Cr. 8,845,548	Cr. 17,639,710
Other " ".....	81,136	27,365	189,997	2,446,787	2,881,244
Totals.....	107,374,071	85,684,597	90,595,558	106,168,489	106,982,091
Cumulative Investment to Dec. 31.....	6,744,706,342	6,830,390,939	6,920,986,497	7,027,154,986	7,134,137,077

Revenues and Expenses.—Both operating revenues and expenses of railways operating in Canada reached peak levels in 1964. Increases over 1963 amounted to 9.4 p.c. and 8.0 p.c., respectively, and because the increase was greater in revenues than in expenses an improvement in net earnings resulted. Accelerated economic activity throughout the country in 1964 was reflected in increased traffic and both freight-train revenue per freight-train mile and passenger-train revenue per passenger-train mile were the highest on record.

8.—Operating Revenues and Expenses of Railways, 1955-64

NOTE.—Operating revenues and expenses from 1875 are given in previous editions of the Year Book beginning with the 1916-17 edition.

Year	Total Operating Revenues	Total Operating Expenses	Ratio of Operating Expenses to Operating Revenues	Per Mile of Line			Freight- Train Revenue per Freight- Train Mile	Passenger- Train Revenue per Passenger- Train Mile
				Operating Revenues	Operating Expenses	Net Operating Revenues		
	\$	\$	p.c.	\$	\$	\$	\$	\$
1955.....	1,198,351,601	1,048,564,681 ¹	87.50	26,876	23,517	3,359	12.21	3.60
1956.....	1,300,623,923	1,171,338,574	90.06	29,047	26,159	2,888	12.75	3.16
1957.....	1,263,147,930	1,203,530,146	95.28	28,171	26,841	1,330	13.85	3.30
1958.....	1,163,735,417	1,132,277,504	97.30	25,766	25,070	696	14.51	3.11
1959.....	1,224,567,928	1,166,306,724	95.24	27,093	25,804	1,289	15.48	3.29
1960.....	1,151,655,456	1,109,470,426	96.34	25,544	24,608	936	15.54	3.46
1961.....	1,156,480,700	1,114,432,525	96.36	25,736	24,800	936	16.72	3.32
1962.....	1,165,296,722	1,119,662,072	96.08	26,002	24,984	1,018	16.91	3.56
1963.....	1,210,209,799	1,149,530,526	94.99	27,051	25,695	1,356	17.04	3.51
1964.....	1,324,422,492	1,241,258,655	93.72	29,857	27,982	1,875	17.51	3.64

¹ Excludes equipment rents, joint facility rents and tax accruals.

Of the total operating expenses in 1964, amounting to \$1,241,258,655, those connected with the transporting of persons and property, such as station, yard and terminal services and employees, wharves, fuel, etc., accounted for 37.7 p.c.; equipment maintenance accounted for 22.3 p.c.; road maintenance for 20.1 p.c.; rents and taxes for 6.8 p.c.; expenses connected with traffic soliciting, such as advertising and information, ticket and freight offices, etc., for 2.6 p.c.; and miscellaneous expenses, including incidentals, dining and buffet services, grain elevators, etc., for the remaining 10.5 p.c. These proportions have remained fairly constant in recent years.

Employment, Salaries and Wages.—Rail employment in 1964 was slightly higher than in the preceding year but was still nearly 27 p.c. lower than the high point of 1956. Over the ten-year period 1955-64, employment dropped 13.5 p.c. but the average annual salary for the industry was 46.7 p.c. higher and total compensation paid was up 18.3 p.c. The 1964 increase in rail employment over 1963 is no doubt attributable to operational and traffic trends in the industry, which followed closely the course of other indicators of economic activity. Also, it should be noted that employee data for 1964 were based on a new Uniform Canadian Classification of Railway Employees in which a bi-monthly method of counting was introduced. This method tends to reduce the number of employees by from 2 p.c. to 3 p.c. For details see DBS publication *Railway Transport, Part VI* (Catalogue No. 52-212).

9.—Railway Employees and Their Earnings, 1955-64

NOTE.—Figures include employees and wages for 'outside' operations amounting to from 3 to 6 p.c. of total employees and from 2 to 5 p.c. of total salaries and wages. Figures for 1912-39 are given in the 1941 Year Book, p. 551; for 1940-49 in the 1951 edition, p. 723; and for 1950-54 in the 1961 edition, p. 785.

Year	Employees	Total Salaries and Wages	Average Salaries and Wages	Ratio of Total Payroll (charged to operating expenses) to—	
				Operating Revenues	Operating Expenses
	No.	\$	\$	p.c.	p.c.
1955.....	195,459	674,875,767	3,453	50.2	57.4
1956.....	215,324 ¹	780,135,918	3,623	50.6	55.9
1957.....	212,426 ¹	791,529,117	3,726	51.4	53.9
1958.....	192,809 ¹	757,907,896	3,931	52.7	54.3
1959.....	187,981 ¹	780,031,534	4,150	51.5	54.2
1960.....	175,537 ¹	740,475,804	4,218	52.0	54.2
1961.....	166,081 ¹	748,097,831	4,504	52.7	54.9
1962.....	162,861 ¹	747,301,214	4,589	51.4	53.7
1963.....	156,527 ¹	756,862,741	4,835	50.4	53.1
1964.....	157,643 ¹	798,537,454	5,065	49.1	52.3

¹ Includes employees engaged in communications, express cartage, highway transport (rail) and outside operations.

Subsection 4.—The Canadian National Railway System*

In view of the interest in Canada's publicly owned railway, the Canadian National Railway System is given separate treatment in this Subsection. More detailed information than can be given here is obtainable from DBS annual report *Canadian National Railways* (Catalogue No. 52-201).

Financial Statistics.—The original financial structure of the CNR and the steps taken through the Capital Revision Acts of 1937 and 1952 to alleviate the burden of interest debt undertaken by the company on its formation in 1923 are described in the 1955 Year Book, pp. 840-847. Briefly, the Capital Revision Act of 1937 wrote off all loans that had been made to cover deficits and also unpaid interest on loans, and certain loans made for the purpose of additions and betterments were converted to equity capital, relieving the CNR from paying fixed charges on this amount. Under the 1952 Capital Revision Act, 50 p.c. of the company's interest-bearing debt was changed to preferred stock on which, after settling income taxes, a dividend of 4 p.c. is paid on earnings. Also, for a term of ten years ended Jan. 1, 1962, the Railway was not obliged to pay interest on \$100,000,000 of its long-term debt. The Government is authorized to buy additional preferred stock annually in amounts related to the company's gross revenues. As a consequence, the proportion of total capitalization represented by equity capital in shareholders' account was raised from 34.5 p.c. at Dec. 31, 1951 to 67.2 p.c. at Jan. 1, 1952, and the proportion of borrowed capital was correspondingly reduced. By the end of 1964, the proportion represented by equity capital in shareholders' account was 50.5 p.c.

* The Hudson Bay Railway, formerly managed and operated for the Federal Government by the CNR, was absorbed into the Canadian National Railway System on Jan. 1, 1953, to be operated in the same manner as other Canadian Government railway lines. Statistics of the Hudson Bay Railway are therefore included with CNR data for 1958 and subsequent years.

10.—Capital Structure of the Canadian National Railway System as at Dec. 31, 1955-64

At Dec. 31—	Shareholders' Capital		Funded Debt Held by Public		Government Loans and Appropriations—Active Assets in Public Accounts	Total
	Government of Canada Shareholders' Account	Capital Stock Held by Public	Guaranteed by Federal and Provincial Governments	Other		
	\$	\$	\$	\$	\$	\$
1955.....	1,591,902,624	4,511,150	861,870,899	34,493,192	199,444,622	2,692,222,487
1956.....	1,616,270,966	4,503,670	794,482,906	25,086,606	353,664,828	2,794,013,976
1957.....	1,639,451,306	4,505,870	730,346,711	17,978,788	623,967,851	3,016,250,526
1958.....	1,704,387,845	4,504,203	1,024,710,205	9,098,765	484,791,699	3,227,492,717
1959.....	1,723,909,722	4,503,549	1,335,510,205	5,548,765	345,684,052	3,415,156,293
1960.....	1,721,143,162	4,499,284	1,677,209,478	3,098,765	148,021,700	3,553,972,389
1961.....	1,744,673,266	4,499,273	1,670,653,176	2,423,765	164,593,150	3,586,842,630
1962.....	1,767,976,925	4,499,261	1,630,895,308	2,423,765	209,026,793	3,614,822,052
1963.....	1,792,380,188	4,485,785	1,378,875,000	2,023,764	410,354,762	3,588,119,499
1964.....	1,817,243,906	4,345,185	1,367,811,500	2,023,764	410,354,762	3,601,779,117

In Table 11 the assets of the Canadian National Railway System as at Dec. 31, 1963 and 1964 are shown.

11.—Assets of the Canadian National Railway System as at Dec. 31, 1963 and 1964

NOTE.—Assets as at the time of consolidation of the system (Dec. 31, 1922) are given in the 1963-64 Year Book, p. 764.

Account	Dec. 31, 1963	Dec. 31, 1964	Account	Dec. 31, 1963	Dec. 31, 1964
	\$	\$		\$	\$
Current Assets.....	211,534,650	226,809,161	Investments—concl.		
Cash.....	32,707,012	37,837,795	Improvements on leased property.....	1,381,965	1,384,654
Special deposits.....	26,277	26,406	Non-rail property.....	135,450,325	142,670,141
Traffic accounts receivable.....	3,863,192	3,254,405	Investments in affiliated companies.....	291,010,703	288,835,590
Agent and conductor balances.....	41,970,274	48,109,500	Other investments.....	3,576,549	4,464,431
Other accounts receivable.....	38,557,253	27,386,834	Deferred Assets.....	28,252,767	28,112,365
Government of Canada due on deficit account.....	8,513,517	27,025,904	Working fund advances.....	763,244	746,850
Material and supplies.....	62,990,782	61,599,783	Insurance and other funds.....	17,500,000	17,000,000
Interest and dividends receivable.....	3,420,813	4,010,276	Other deferred assets.....	9,989,523	10,365,515
Other current assets.....	19,485,530	17,558,258	Unadjusted Debits.....	32,532,487	29,154,737
Investments.....	4,294,232,739	4,376,878,642	Prepayments.....	2,464,684	2,327,563
Road and equipment property.....	3,862,813,197	3,939,523,826	Discount on funded debt.....	19,489,453	17,358,514
			Other unadjusted debits.....	10,578,350	9,468,660
			Totals.....	4,566,552,643	4,660,954,905

The financial details presented in Table 12 are those of the entire Canadian National Railway System, including both Canadian and United States operations. Revenues and expenses include those of express and commercial communications throughout, and high-way transport (rail) operations from 1956. In conformity with the requirements of the Uniform Classification of Accounts, tax accruals and rents have been charged to operating expenses since Jan. 1, 1956.

12.—Total Revenue, Operating Expenses, Net Revenue, Fixed Charges and Deficits of the Canadian National Railway System (Canadian and United States Operations), 1955-64

NOTE.—Figures for 1911-54 are given in the corresponding table of previous Year Books beginning with the 1936 edition.

Year	Total Operating Revenue	Total Operating Expenses	Income Available for Fixed Charges	Total Fixed Charges	Net Income or Deficit ¹	Cash Deficit or Surplus ²
	\$	\$	\$	\$	\$	\$
1955.....	683,088,794	629,013,125	43,478,955	33,004,300	Cr. 10,474,655	Cr. 10,717,689 ³
1956.....	774,800,647	728,008,837	57,623,710	31,782,991	" 25,840,719	" 26,076,951 ³
1957.....	753,165,964	755,214,378	6,913,660	36,971,680	Dr. 30,058,020	Dr. 29,572,541
1958.....	704,947,410	719,211,865	Dr. 4,779,895	46,521,236	" 51,301,131	" 51,591,424
1959.....	740,165,041	741,852,260	8,416,237	52,918,886	" 44,502,649	" 43,588,290
1960.....	693,141,106	705,818,310	1,504,828	69,469,961	" 67,965,133	" 67,496,777
1961.....	710,305,173	722,147,583	5,539,970	73,404,523	" 67,864,553	" 67,307,772
1962.....	738,324,754	738,882,680	23,308,683	74,443,482	" 51,134,799	" 48,919,454
1963.....	762,350,334	752,829,782	36,622,626	76,252,867	" 39,630,241	" 43,013,517
1964.....	822,483,679	811,471,248	37,886,007	74,673,809	" 36,787,802	" 38,725,904

¹ Includes appropriations for insurance fund.

² Contributed by or paid to the Government of Canada.

³ Paid to the Government of Canada as a dividend on 4-p.c. preferred stock.

Milage and Traffic.—At Dec. 31, 1964, the length of first main track owned by the Canadian National Railways (including electric lines and lines in the United States but excluding lines of the Northern Alberta Railways and Toronto Terminals Railway controlled jointly by the Canadian National and the Canadian Pacific Railways) was 24,365 miles.

13.—Train Traffic Statistics of the Canadian National Railways (Canadian and United States Lines), 1962-64

NOTE.—Includes electric lines.

Milage and Traffic	1962	1963	1964
Train Milage.....miles	54,014,281	54,679,183	58,135,511
Passenger service.....	18,096,980	17,079,631	18,348,086
Freight service.....	34,283,043	35,796,950	38,240,893
Work service.....	1,634,258	1,802,601	1,546,532
Passenger-Train Car Milage.....miles	188,256,798	177,232,023[†]	195,491,301
Coaches and combination (excl. work service)...	42,510,131	41,268,166	47,304,522
Motor unit cars.....	3,806,184	3,877,880 [†]	3,952,648
Parlour, sleeping and dining cars.....	48,550,070	49,022,060 [†]	64,319,706
Baggage, mail, express, etc.....	93,390,413	83,063,317 [†]	79,914,425
Freight-Train Car Milage.....miles	1,827,405,682	1,965,622,868[†]	2,110,254,847
Loaded freight.....	1,111,523,850	1,181,953,889	1,265,929,716
Empty freight.....	680,796,324	746,854,265	804,111,089
Caboose.....	35,075,508	36,814,714 [†]	40,214,042
Work-Train Car Milage.....miles	2,804,515	2,869,321	2,651,373
Passenger Traffic—			
Passengers carried (earning revenue)..... No.	12,443,945	13,598,961	15,500,649
Passengers carried (earning revenue) one mile... "	1,044,192,458	1,189,051,239	1,613,350,069
Passenger-miles per mile of road..... "	42,184	48,121	65,325
Average passenger journey.....miles	83.9	87.4	104.1
Average amount received per passenger..... \$	2.76	3.27 [†]	3.34
Average amount received per passenger-mile.... \$	0.03288	0.03730 [†]	0.03212
Freight Traffic—			
Revenue freight carried..... tons	78,384,773	84,078,393	92,632,736
Revenue freight carried one mile..... "	35,595,425,349	40,171,173,489	44,516,285,706
Revenue freight carried one mile per mile of road..... "	1,438,003	1,625,733	1,802,487
Total (all classes) freight carried one mile per mile of road..... "	1,458,828	1,649,226	1,821,400
Average hauls, revenue freight.....miles	454.1	477.8	480.6
Gross ton miles per freight train hour..... No.	52,085	56,561	59,034
Freight revenue per ton..... \$	6.75	6.57	6.51
Freight revenue per ton-mile..... \$	0.01487	0.01375	0.01355

Section 2.—Express Companies

There are five express organizations operating in Canada. The Canadian Pacific Express exists as a subsidiary of the Canadian Pacific Railway Company, and the express business of the Algoma Central and Hudson Bay Railway, the Canadian National Railway System and the Northern Alberta Railways Company is handled by departments of the respective railways. The Railway Express Agency Incorporated of the United States operates mainly over the Canadian sections of U.S. rail lines.

Express companies are organized under federal legislative authority. They are primarily engaged in the rapid transportation of package freight but their services also include custom brokerage, money orders, travellers cheques and other financial paper transactions. Recently, the major railways have introduced a unified service for handling small package express freight and less-than-carload-lot shipments, using the efficient facilities of their rail, piggyback and highway transport services to provide fast and competitive movement of goods.

No statistics are available on the volume of express freight handled because much of it consists of parcels and small lots which cannot be classified. Table 14 shows the milages operated by and the financial statistics of the express agencies for 1960-64, with figures by company for 1964.

14.—Summary Statistics of Express Companies, 1960-64

NOTE.—Figures from 1911 are given in the corresponding table of previous Year Books beginning with the 1927-28 edition.

Year or Company	Milages Operated in Canada ¹	Gross Earnings	Operating Expenses ²	Express Privileges ³	Net Operating Revenue
	No.	\$	\$	\$	\$
1960.....	62,154	84,986,847	61,123,030	23,242,445	621,372
1961.....	65,523	81,098,805	62,674,794	17,875,713	548,298
1962.....	70,985	83,877,337	64,086,906	19,041,953	748,478
1963.....	74,293 ⁴	79,031,998	62,127,111	16,167,030	737,857
1964.....	76,025	81,728,007	64,918,242	16,162,703	647,062
1964					
Algoma Central and Hudson Bay Rly.	322	66,814	50,841	22,800	Dr. 6,827
Canadian National Express.....	56,742	45,808,494	36,663,496	8,651,953	493,045
Canadian Pacific Express.....	16,717	29,860,007	23,588,589	6,124,418	147,000
Northern Alberta Railways.....	928	317,889	194,249	123,640	—
Railway Express Agency, Inc.....	1,316	5,674,803	4,421,067	1,239,892	13,844

¹ Over railways, boat lines, motor carrier and aircraft routes.

² Includes tax accruals from 1956 in accordance with the Uniform Classification of Accounts adopted Jan. 1, 1956.

³ Amounts paid by express companies to the carriers, i.e., railways, steamship lines, etc., for transporting express matter.

⁴ Excludes an estimated 10,040 airline miles over which express services are provided.

Business transacted by express companies in financial paper is showing a downward trend, declining from \$146,029,950 in 1960 to \$134,895,194 in 1964. The 1964 total was made up of: domestic and foreign money orders, \$106,997,022; C.O.D. cheques, \$17,639,941; travellers cheques, \$10,214,133; and telegraphic transfers, \$44,098. The major decrease was shown in the amount of money orders issued.

The number of persons employed by express companies has also decreased over the five-year period. Employment (full-time and part-time) was provided for 7,346 persons in 1964, to whom \$32,398,891 was paid in salaries and wages; this compared with 10,733 employees in 1960, receiving \$40,206,239 in salaries and wages. Commissions paid dropped from \$2,736,817 to \$2,233,255 over the same period.

Government Aid to Railways.—In order that the private railways of Canada might be constructed in advance of settlement as colonization roads or through sparsely settled districts where little traffic was available, it was necessary for federal and provincial governments and even for municipalities to extend some form of assistance. The form of aid was usually a bonus of a fixed amount for each mile of railway constructed and, in the early days, grants of land were also made other than for right-of-way. As the country developed, objections to the land-grant method became increasingly apparent and aid was given more frequently in the form of a cash subsidy for each mile of line, a loan or a subscription to the shares of the railway. Guarantees of debenture issues were given in a later period and, since the formation of the Canadian National Railways, all debenture issues of that System, except those for rolling-stock, have been guaranteed by the Federal Government.

During the era of railway expansion before 1918, provincial governments guaranteed the bonds of some railway lines that afterwards were incorporated in the Canadian National Railway System. These bonds as they mature or are called are paid off by the Canadian National Railways, in large measure through funds raised by the issue of new bonds with Federal Government guarantee. Railway bonds guaranteed by the Government of Canada at Dec. 31, 1964 amounted to \$1,367,811,500.

For some years the Federal Government has been assisting shippers by bearing a portion of rail transportation costs on certain types of traffic moving between and within specific areas of Canada. Reimbursement to the railways for diminution of revenue resulting from these reductions has been provided through four principal plans: the Freight Rates Reduction Act (SC 1959, c. 27), which reduces for shippers, on certain classes of traffic, the full effect of the last freight rate increase authorized by the Board of Transport Commissioners for Canada in 1958; the East-West Bridge Subsidy, which provides reduced rates to shippers on certain traffic moving between Eastern and Western Canada; the Maritime Freight Rates Act (RSC 1952, c. 174), which reduces rates to shippers on traffic moving within and out of the Atlantic Provinces; and interim payments related to recommendations of the MacPherson Royal Commission. (See also p. 758.)

PART III.—ROAD TRANSPORT*

Highways and motor vehicles are herein treated as related features of transportation. An introductory Section summarizes provincial regulations regarding motor vehicles and motor traffic.

Section 1.—Provincial Motor Vehicle and Traffic Regulations†

NOTE.—It is obviously impossible to include here the great mass of detailed regulations in force in each province and territory; only the more important general information is given. The source of information for detailed regulations for each province and territory is given at pp. 773-774.

The registration of motor vehicles and the regulation of motor vehicle traffic lies within the legislative jurisdiction of the provincial and territorial governments. Regulations common to all provinces and territories are summarized as follows.

Operators' Licences.—The operator of a motor vehicle must be over a specified age, usually 16 years (17 in Newfoundland and 18 for class A licence in Alberta), and must carry a licence, obtainable in most provinces only after prescribed qualification tests. Such licence is renewable annually in Newfoundland, Prince Edward Island, Nova Scotia and Saskatchewan; in Alberta and British Columbia it is renewable every five years; in New Brunswick, Quebec and Manitoba it is renewable every two years and, in Quebec, expires on the licensee's birth date; in Ontario a licence is issued on a three-year basis and expires

* Except as otherwise indicated, the material in this Part has been revised in the Transportation Section, Public Finance and Transportation Division, Dominion Bureau of Statistics.

† Revised according to information received from the respective provincial authorities concerned.

on the licensee's birth date. Special licences are required for chauffeurs in all provinces except Newfoundland and in some jurisdictions special licences may be granted to those who have not reached the specified age.

Motor Vehicle Regulations.—All motor vehicles and trailers must be registered annually, with the payment of specified fees, and must carry two registration plates, one on the front and one on the back of the vehicle (one only for the back of trailers); in New Brunswick and Prince Edward Island one licence plate is issued to be attached to the front of truck tractors and to the rear of all other vehicles. In most provinces, in event of sale the registration plates stay with the vehicle but in Quebec, Manitoba, Saskatchewan and Alberta the plates are retained by the owner. In Nova Scotia, vehicles pass from owner to owner by due process of law and title must be secured before issue of plates and permit. A change of ownership of the vehicle must be recorded with the registration authority. However, exemption from registration is granted for a specified period (usually at least 90 days, except in Quebec where the maximum is 90 days, in British Columbia where it is six months and in Ontario where it is six months for vehicles from other provinces and three months for vehicles registered outside Canada) in any year to visitors' private vehicles registered in another province or a state that grants reciprocal treatment. Regulations require a safe standard of efficiency in the mechanism of the vehicle and of its brakes and stipulate that equipment include non-glare headlights, a proper rear light, a muffler, a windshield wiper, a rear-vision mirror, and a warning device.

Traffic Regulations.—In all provinces and territories, vehicles keep to the right-hand side of the road. Everywhere motorists are required to observe traffic signs, lights, etc., placed at strategic points on highways and roads. The speed limit in Prince Edward Island, New Brunswick and Quebec is 60 miles an hour in daytime and 55 at night; in Manitoba and Alberta it is 60 in daytime and 50 at night, with the exception of a few selected sections of four-lane highway in Alberta where maximum speeds in excess of the foregoing may be authorized and posted. In Nova Scotia the limit is a "reasonable and prudent" speed, with a maximum of 60 miles an hour except where 65 miles an hour is authorized. In Ontario maximum speeds vary from 50 to 60 miles an hour, depending on type of highway. In the other provinces the maximum speed permitted is normally 50 miles an hour; in Saskatchewan and British Columbia where higher speed limits are in effect they are posted. Slower speeds are always required in cities, towns and villages, when passing schools and public playgrounds, at road intersections, railway crossings or at other places or times where the view of the highway for a safe distance ahead is in any way obscured. In almost all provinces, truck speed limits are at least five miles an hour below automobile speed limits. In all provinces and territories, accidents resulting in personal injury or property damage of \$100 or more must be reported to a police officer (in Nova Scotia to the Registrar of Motor Vehicles or to a police officer; in Quebec to the Motor Vehicle Bureau) and a driver involved must not leave the scene of an accident until he has rendered all possible aid and disclosed his name to the injured party.

Driver Licensing Controls.—All provinces impose penalties for infractions of driving regulations, ranging from fines for minor infractions to suspension of the operator's driving permit, impounding of the car, or imprisonment for more serious infractions. In most provinces penalties have been linked to a driver-improvement program, the aim of which is to correct faulty driving habits, not to take drivers off the road. The most common driver-improvement program includes the demerit-point-system.

Safety Responsibility Legislation.—Each province has enacted legislation under this heading (sometimes referred to as financial responsibility legislation). In general, these laws provide for the automatic suspension of the driver's licence and motor vehicle permit of a person convicted of a serious offence (impaired driving, driving under suspension, etc.) or a person involved directly or indirectly in an accident who is not covered for third-party insurance at the time of the accident. The suspension remains effective until any

penalty or judgment has been satisfied and proof of financial responsibility for the future is filed. In Quebec, Saskatchewan and the Yukon Territory, uninsured motor vehicles may be impounded following an accident of any consequence, i.e., an accident resulting in personal injury or death, or property damage in excess of \$100 (\$200 in Saskatchewan). In Ontario, the non-resident motorist is not required to carry or produce any form of proof of insurance.

Although safety responsibility legislation has not been enacted in the Northwest Territories, under present requirements the owner of a motor vehicle resident in the Mackenzie Highway region must submit evidence of stipulated insurance coverage on such vehicle before he can obtain registration. In the Yukon Territory, proof of insurance must be supplied before vehicle licence is issued. When the insurance expires or is cancelled, vehicle licence plates must be returned to the Registrar of Motor Vehicles.

Unsatisfied Judgment Fund.—Legislation has been enacted in all provinces except in Saskatchewan and in the Yukon and Northwest Territories, usually in the form of an amendment to the motor vehicle laws of the province or territory, providing for the establishment of a fund, frequently called an Unsatisfied Judgment Fund, out of which are paid judgments awarded for damages arising out of motor vehicle accidents in the province which cannot be collected in the ordinary process of law. In Newfoundland, Prince Edward Island, Nova Scotia, Quebec and British Columbia the fund is maintained by insurance companies. In all the other provinces, except Saskatchewan where insurance is compulsory, the funds are obtained by the annual collection of a fee from the registered owner of every motor vehicle or from every person to whom a driver's licence is issued. The fee does not exceed \$1 per annum except that Ontario and Alberta collect \$20 from each uninsured owner of a motor vehicle at the time of registration or transfer and Manitoba collects an additional \$25 from each uninsured owner at the time of registration. A feature of this legislation, which is contained in some provincial statutes, is the provision for the payment of judgments in 'hit-and-run' accidents. When these occur, if neither the owner nor the driver can be identified, action may be taken against the Registrar of Motor Vehicles (the Minister of Finance in Newfoundland and the Administrator of the Motor Vehicles Accident Claim Fund in Alberta); any judgment secured against the responsible authority is paid out of the Fund. All of these laws contain a provision limiting the amount that can be paid out of the Fund on one judgment. In Newfoundland and Nova Scotia, the limits are \$10,000 for one person, \$20,000 for two or more persons injured in one accident and \$5,000 for property damage. In Nova Scotia and New Brunswick the limit is \$35,000 in respect of any one accident. In Prince Edward Island and Quebec the limit is \$35,000 for all damages in the same accident, subject to a deduction of \$200 from all damage to the property of others; damages resulting in bodily injury or death are, up to \$30,000, payable by priority over damages to property and the latter are, up to \$5,000, payable by priority over the former out of the amount of any insurance or other guarantee of indemnity. In British Columbia, the limit is based on the single amount of \$35,000 for any one accident with the proviso that not more than \$5,000 may be paid on a property damage claim until injury claims up to \$30,000 have been satisfied; the \$35,000 limit exists for hit-and-run accidents but does not apply to payments for property damage. In Ontario and Alberta, the limits are \$35,000 for death or personal injury to one or more persons and \$5,000 for damage to property, subject to a limit of \$35,000 in any one accident. In Manitoba, the limit based on one accident is \$35,000 for claims for injury or property damage with the stipulation that not more than \$5,000 may be allocated to property damage until injury claims up to \$30,000 have been satisfied. In other provinces, lower limits of \$5,000, \$10,000 and \$1,000 are retained. For hit-and-run accidents payments are made for personal injuries only.

Sources of information on provincial motor vehicle and traffic regulations:—

Newfoundland

Administration.—The Minister of Finance, St. John's.

Legislation.—The Highway Traffic Act, 1962.

Prince Edward Island

Administration.—The Provincial Secretary, Charlottetown.

Legislation.—The Highway Traffic Act (SPEI 1964, c. 14).

Nova Scotia

Administration.—Registry of Motor Vehicles, Department of Highways, Halifax.

Legislation.—The Motor Vehicle Act (1954, c. 184, as amended) and the Motor Carrier Act (1958, c. 7, as amended).

New Brunswick

Administration.—Motor Vehicle Branch, Department of Provincial Secretary, Fredericton.

Legislation.—The Motor Vehicle Act (RSNB 1955, as amended).

Quebec

Administration.—Motor Vehicle Bureau, Department of Transportation and Communications, Parliament Bldgs., Quebec.

Legislation.—The Highway Code (RSQ 1941, c. 142 and 142A, as amended).

Ontario

Administration.—Ontario Department of Transport, Toronto.

Legislation.—The Highway Traffic Act (RSO 1960, c. 172, as amended), the Public Vehicles Act (RSO 1960, c. 337, as amended), the Public Commercial Vehicles Act (RSO 1960, c. 319, as amended) and the Motor Vehicle Accident Claims Act (1961-62, c. 84, as amended).

Manitoba

Administration.—Minister of Public Utilities, Winnipeg.

Legislation.—The Highway Traffic Act (RSM 1954, c. 112, as amended).

Saskatchewan

Administration.—Highway Traffic Board, Revenue Building, Regina.

Legislation.—The Vehicles Act, 1957.

Alberta

Administration and Legislation.—The Vehicles and Highway Traffic Act (RSA 1955, c. 356) and the Motor Vehicle Accident Claims Act (SA 1964, c. 56) are administered by the Motor Vehicle Branch, Department of Highways, Edmonton. The Public Service Vehicles Act (RSA 1955, c. 265) and the Rules and Regulations are administered by virtue of authority vested in the Highway Traffic Board, Department of Highways, Edmonton.

British Columbia

Administration and Legislation.—Enforcement of the Motor Vehicle Act, the Commercial Transport Act and the Motor Carrier Act is vested in the Royal Canadian Mounted Police and the various municipal police forces. The Motor Carrier Act is administered by the Public Utilities Commission, the Motor Vehicle Act by the Superintendent of Motor Vehicles and the Commercial Transport Act by the Minister of Commercial Transport, Victoria, B.C.

Yukon Territory

Administration.—Commissioner of the Yukon Territory, Whitehorse, Y.T. Information regarding regulations may also be obtained from the Registrar of Motor Vehicles, Government of the Yukon Territory, Whitehorse, Y.T.

Legislation.—The Motor Vehicles Ordinance (Revised Ordinances 1958, c. 77, as amended).

Northwest Territories

Administration.—Commissioner of the Northwest Territories. Address communications to the Deputy Commissioner of the Northwest Territories, 150 Kent St., Ottawa.

Legislation.—The Motor Vehicles Ordinance (Revised Ordinances of the Northwest Territories, 1956, c. 72, as amended).

Section 2.—Highways, Roads and Streets

Highways and Roads.—The populated sections of Canada are well supplied with highways and roads. Access to outlying settlements is provided to some extent by roads built by logging, pulp and paper, and mining companies, although these are not generally available for public travel. At the same time, great areas of Newfoundland, Quebec, Ontario, the Prairie Provinces, British Columbia and the Territories are very sparsely settled and are virtually without roads of any kind.

At the end of 1963, the mileage of highways and rural roads in Canada was 441,418, an increase of 5,364 miles over the 436,054 reported in 1962. The 441,418 miles include all roads under provincial jurisdiction, federal roads, and local roads under municipal jurisdiction other than the milages in census metropolitan areas and urban centres of more than 1,000 population. The latter are given separately under the heading of "Urban Streets", p. 778.

1.—Highway and Rural Road Milage classified by Type and by Province, 1963 with Totals for 1959-63

NOTE.—Excludes urban streets but includes milages under jurisdiction of rural and small urban municipalities; excludes milages of all roads on Indian reservations except those of flexible pavement.

Classification	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Canada
	miles	miles	miles	miles	miles	miles	miles	miles	miles	miles	miles	miles
Surfaced	4,431	2,562	10,594	13,209	44,063	74,356	27,361	48,342	55,813	20,215	2,358	303,304
Rigid pavement	1	192	7	—	—	1,605	463	—	19	23	—	—
Flexible pavement	624	919	3,671	1,773	13,078	20,295	2,637	4,010	4,554	5,752	8	59,631
Gravel	3,806	1,451	6,916	11,436	30,985	52,456	24,261	44,332	51,240	14,440	2,350	243,673
Earth	3,006	761	4,801	—	10,152	3,882	15,169	76,105	15,980	8,167	91	138,114
Totals, 1963 ..	7,437	3,323	15,395	13,209	54,215	78,238	42,530	124,447	71,793	28,382	2,449	441,418
1962	7,291	3,265	15,374	13,738	53,893	77,143	41,396	124,066	70,445	26,875	2,568	436,054
1961	7,137	3,278	15,347	13,670	53,572	76,061	40,127	123,908	70,613	27,297	2,251	433,261
1960	6,988	3,298	15,342	13,424	53,804	74,586	38,586	120,060	69,060	26,729	2,298	424,115
1959	6,873	3,250	15,341	13,198	52,588	72,821	39,410	118,934	67,647	26,621	2,115	418,798

Expenditure on highways and rural roads in the year ended Mar. 31, 1964 totalled \$921,229,000, an amount 18.5 p.c. higher than that for the previous fiscal year; construction expenditures increased by 19.5 p.c. and maintenance costs by 8.1 p.c.

2.—Construction, Maintenance and General Expenditure on Highways, Rural Roads, Bridges and Ferries, by Province, Years Ended Mar. 31, 1963 and 1964

Item and Province or Territory	1963	1964	Item and Province or Territory	1963	1964
	\$'000	\$'000		\$'000	\$'000
Construction	511,674	611,648	Administration and General ...	30,645	55,502
Newfoundland.....	10,527	24,723	Newfoundland.....	578	577
Prince Edward Island.....	6,145	6,070	Prince Edward Island.....	76	84
Nova Scotia.....	15,885	16,237	Nova Scotia.....	1,605	1,671
New Brunswick.....	17,102	20,574	New Brunswick.....	1,398	1,066
Quebec.....	110,507	165,818	Quebec.....	5,492	6,515
Ontario.....	166,718	181,237	Ontario.....	13,074	35,006
Manitoba.....	25,218	25,237	Manitoba.....	2,428	3,466
Saskatchewan.....	30,159	33,075	Saskatchewan.....	903	1,858
Alberta.....	46,858	55,506	Alberta.....	875	846
British Columbia.....	76,242	78,675	British Columbia.....	3,717	3,910
Yukon and N.W.T.....	6,313	4,496	Yukon and N.W.T.....	299	303
Maintenance	235,113	254,079	Totals	777,432	921,229
Newfoundland.....	9,838	10,169			
Prince Edward Island.....	2,818	2,880			
Nova Scotia.....	12,196	14,768	Distribution of Expenditure—		
New Brunswick.....	14,179	13,428	Federal	71,848	82,251
Quebec.....	69,434	73,749	Provincial	632,146	744,627
Ontario.....	60,865	69,881	Municipal	71,725	89,442
Manitoba.....	7,167	7,112	Other	1,713	4,909
Saskatchewan.....	13,902	12,840			
Alberta.....	20,769	22,215			
British Columbia.....	22,254	25,304			
Yukon and N.W.T.....	1,691	1,733			

¹ Includes federal administrative costs re Trans-Canada Highway amounting to \$201,000 in 1962-63 and \$200,000 in 1963-64.

Federal-Provincial Road Assistance Programs.—There are various programs existing between the Federal Government and the provinces relating to highway and road construction. In 1965, the co-ordination of these programs and the announcement of federal road policy was placed with the Minister of Transport. When major programs of assistance have been decided upon, responsibility for their implementation rests with the Department of Public Works.

The Trans-Canada Highway.—The original federal-provincial agreement for construction of the Trans-Canada Highway is given in outline, together with data on specifications and route across the participating provinces, in the 1951 Year Book, pp. 631-634. Construction progress and changes in legislation are reported in subsequent editions.

Under the Act, which became effective Dec. 10, 1949, agreements covering the Federal Government's participation in the cost of construction were entered into with each of the provinces. Construction standards were set and the date of completion fixed. The shortest practicable east-west route was to be designated by each province within its own borders, in agreement on terminal points with adjoining provinces, and those sections within the National Parks were to be the responsibility of the Federal Government. Later amendments to the Act increased the extent of federal financial participation and extended the period in which construction costs might be incurred under the Act to Dec. 31, 1967.

Although construction was still going on in a number of sections, the closing in 1962 of the last major gap—in the Rocky Mountains—made it possible for the first time to drive the entire length of the 4,860-mile route. The Trans-Canada Highway was officially opened on Sept. 3, 1962.

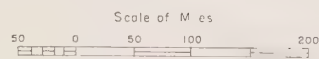
Provincial milages are approximately as follows: Newfoundland, 540; Prince Edward Island, 71; Nova Scotia, 318; New Brunswick, 390; Quebec, 399; Ontario, 1,453; Manitoba, 309; Saskatchewan, 406; Alberta, 282; and British Columbia, 552. Length through the National Parks totals 140 miles.

Up to Mar. 31, 1965, contractual commitments for new construction on the Highway amounted to \$923,818,361, of which the federal share was \$586,933,625. Federal payments to the provinces for prior, interim and new construction totalled \$489,826,337. Paving to specified standards had been completed over a distance of 3,645 miles and 779 bridges, overpasses and other structures of more than 20-foot span had been or were being constructed.

Roads to Resources and Roads in the North.—The *Roads to Resources Program* is a national undertaking designed to provide access to areas potentially rich in natural resources. Negotiations commenced in 1958 led to agreements being signed with all ten provinces that will eventually result in the construction or reconstruction of more than 4,700 miles of road. Progress of the program to Mar. 31, 1965 was as follows:—

Province	Estimated Total Cost	Value of Approved Contracts	Provincial Expenditure ¹	Federal Contribution	Total Milage	Milage Completed
	\$'000	\$'000	\$'000	\$'000	No.	No.
Newfoundland.....	16,059	19,352	10,648	4,152	330	265
Prince Edward Is..	15,000	15,733	11,932	5,966	448	361
Nova Scotia.....	16,880	15,147	14,586	7,061	490	360
New Brunswick....	20,562	15,520	13,055	5,250	439	254
Quebec.....	13,435 ²	13,174	12,377	5,437	179	134
Ontario.....	19,370	16,741	13,979	5,913	540	312
Manitoba.....	21,669	16,160	14,201	6,403	720	331
Saskatchewan.....	22,950	13,550	12,524	5,762	914	383
Alberta.....	20,380	14,802	13,926	6,963	408	327
British Columbia...	20,500	14,385	12,744	6,368	319	173
TOTALS.....	186,805	154,564	129,972	59,275	4,787	2,900

¹ Includes only the amounts reported by the provinces to the Federal Government. ² The agreement with Quebec provides for additional projects to be included at a later date to bring the total to \$15,000,000.



LEGEND

- EXISTING ROADS.....
- ROADS UNDER CONSTRUCTION.....
- POSSIBLE FUTURE ROADS.....
- TRAILS.....

Construction continues on roads and trails in the Fort Simpson and Yellowknife areas of the Northwest Territories.



NORTHERN ROADS PROGRAM



The northern road system began with the building, in 1942, of the Alaska Highway, originally a military project but now a well-travelled scenic route from which branch access roads to many points in northern British Columbia and the Yukon Territory.

Data provided by
the Department of Northern Development and National Resources.

Photos by
the National Film Board of Canada

As the statement shows, the total estimated cost in most provinces exceeds \$15,000,000, the amount sharable under the agreement, but the federal contribution to each province will remain at \$7,500,000. Private industry shares in the cost of certain roads where construction is of most direct benefit to the company concerned. In any province the program may consist of as many projects as can qualify for inclusion and for which funds are available. In most provinces, the majority of the roads being built under the program are intended for the purpose of opening up regions to primary resource development and exploration. In Prince Edward Island and Nova Scotia, on the other hand, a number of routes have been chosen for their tourist potential.

The *Development Road Program* in the Yukon Territory and the Mackenzie District of the Northwest Territories is distinct from the Roads to Resources Program in that the Federal Government is responsible for construction; in the Roads to Resources Program, the contribution of the Federal Government is wholly financial. Maintenance costs of Roads to Resources are borne by the provinces but northern roads costs are shared by the Federal and Territorial Governments on an 85-15 basis. In the Yukon Territory, approximately 1,300 miles of development roads, constructed at a cost of about \$30,000,000, were in use in 1964-65; in the Northwest Territories and Wood Buffalo National Park, about 750 miles, costing about \$29,000,000, were in use by the end of March 1965.

In late 1965, a new ten-year road-building program in the Yukon and Northwest Territories was announced by the Minister of Northern Affairs and National Resources, calling for an average expenditure of \$10,000,000 a year, an amount double the annual roads investment in the previous ten-year period. This is the first phase of a long-range 20-year roads network program which should bring all potential areas of resource development in the Territories within 200 miles of the nearest permanent road and thus gradually reduce the North's dependence on seasonal transportation for bulk shipments, reduce the cost of holding large inventories and, as the program progresses, bring the cost of living more in line with that in other parts of Canada. In addition, improved access should result in substantial growth of the tourist industry.

An immediate result of the new program is the speed-up of construction now under way on the 165-mile highway from just south of Hay River to Fort Smith. Also forming part of the new program is the 127-mile area development road being constructed from Ross River to Carmacks in Yukon Territory. This road is of special interest to tourists since it will provide a route from Watson Lake on the Alaska Highway to and through Carmacks, Dawson City, and onward to the Alaska border where it will connect with the State of Alaska Highway System.

Under the previous program, the Federal Government offered to build and pay for mine development roads where two or more companies were developing a mineralized region, and to assist with the cost of mine-access roads and tote-trails. Even so, about 10 p.c. of present exploration and development spending by private industry, which is in excess of \$25,000,000 a year, is spent merely on gaining access to properties. The more extensive road network visualized by the new program, combined with increased federal aid for certain types of access roads, will make it possible for private industry to delegate more capital to actual exploration work.

Types of roads and proportion of federal assistance under the new program are as follows:—

Permanent Access Roads—to lead from the nearest permanent road to a resource development about to produce: federal assistance may be up to two thirds of the cost but may not exceed 15 p.c. of the capital invested by a company before commercial production or exploitation.

Communication and Network Roads—to provide connecting links between the territories, the provinces, and population centres within the territories; construction and 85 p.c. of maintenance costs will be paid by the Federal Government.

Area Development Roads—to lead into resource-potential areas; construction costs will be paid by the Federal Government and maintenance shared by the Federal and Territorial Governments.

Initial Access Roads (lote trails)—low-standard winter or year-round roads to provide an established resource project with access to a network road; federal assistance may be up to 50 p.c. of the cost of the road, which will be maintained by its primary user.

Roads to Public Airports (land or water)—to connect airports with the nearest network or local road; construction and 85 p.c. of maintenance will be paid by the Federal Government.

Construction and Improvement of Trunk Highways in the Atlantic Provinces.—This program, announced in February 1965, will involve an expenditure of \$30,000,000 by the Federal Government over the next three years to be financed from special appropriations to the Atlantic Development Board.* The additional appropriations will enable the Board to continue and expand the earlier program of highway assistance announced in July 1964 when \$10,000,000 was allocated from the Atlantic Development Fund to meet pressing trunk highway needs in the Atlantic region. Under the new program the sum of \$9,000,000 will be available to each of the Provinces of Newfoundland, Nova Scotia and New Brunswick, and \$3,000,000 to Prince Edward Island. The federal contribution for any trunk highway project will be limited to 50 p.c. of the cost of that project.

Included in the program is the provision of special federal assistance to permit early commencement of construction of a new bridge crossing the St. John River at Saint John, N.B.

Urban Streets.—Information on urban streets is obtained from the local administrations of all areas with populations over 1,000, all areas located within census metropolitan areas, improvement districts over 1,000 population and rural municipalities over 15,000 population. Brief statistical data are given in Table 3; more detail may be obtained from DBS annual report *Road and Street Mileage and Expenditure* (Catalogue No. 53-201).

3.—Statistics of Urban Streets, 1959-63

Item		1959	1960	1961	1962	1963
Total Expenditure Reported¹.....	\$'000	191,950	272,388	235,533	254,053	291,407
New construction.....	"	93,884	166,324	123,350	129,185	151,027
Reconstruction, repair, cleaning, sanding, snow removal, administration, etc.....	"	98,066	106,064	112,183	124,868	140,380
Total Urban Mileage.....	No.	37,614	37,769	37,102	41,225	43,056
Rigid pavement.....	"	6,072	6,448	6,281	6,862	6,779
Flexible pavement.....	"	13,173	13,395	15,214	16,815	19,163
Gravel and other surfaces.....	"	15,165	15,012	13,735	15,560	14,892
Earth.....	"	3,204	2,914	1,872	1,988	2,252

¹ Includes expenditures on sidewalks, footpaths, bridges and ferries.

Section 3.—Motor Vehicles

Motor Vehicle Registrations.—Registrations continue to increase year by year, a record of 6,382,033 being reached in 1964. Of that total, 5,037,861 were passenger cars—one for every 3.8 persons. Registrations by province are given in Table 4 and types of vehicles registered by province in Table 5.

* See Chapter XXIV, Section 6.

4.—Motor Vehicles Registered, by Province, 1955-64

NOTE.—Registrations given here include passenger cars, trucks, buses, motorcycles, service cars, etc., but not trailers or dealer licences. Figures for 1904-54 are given in the corresponding table of previous Year Books beginning with the 1937 edition.

Year	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total ¹
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1955.....	39,766	22,145	149,841	106,648	743,682	1,617,853	222,474	274,950	356,839	409,343	3,948,652
1956.....	45,997	23,373	157,544	111,315	844,827	1,710,240	240,008	291,265	381,153	454,217	4,265,437
1957.....	47,982	23,725	164,286	116,712	901,065	1,793,499	246,188	300,326	405,229	491,884	4,497,901
1958.....	51,575	25,504	164,954	121,715	968,058	1,868,922	256,064	314,423	430,081	515,244	4,723,825
1959.....	51,145	27,502	189,435	129,629	1,040,366	1,973,737	269,974	326,690	456,458	545,491	5,017,686
1960.....	61,952	30,147	187,065	138,469	1,096,053	2,062,484	285,689	335,148	486,370	564,351	5,256,341
1961.....	65,270	32,166	206,691	145,951	1,183,978	2,126,270	299,998	349,817	509,298	588,280	5,517,023
1962.....	74,119	33,888	206,370	151,360	1,281,180	2,177,148	312,272	372,219	535,459	620,426	5,774,810
1963.....	79,422	35,314	212,034	156,768	1,381,801	2,268,320	324,806	382,190	560,490	662,453	6,074,655
1964.....	87,990	35,062	222,827	165,311	1,441,201	2,381,219	339,509	396,742	583,713	716,644	6,382,033

¹ Includes registrations in the Yukon and Northwest Territories; in 1964, they numbered 7,325 and 4,490, respectively.

5.—Types of Motor Vehicles Registered, by Province, 1963 and 1964

Year and Province or Territory	Passenger Cars ¹	Commercial Cars, Trucks, etc. ²	Buses	Motorcycles	Total
	No.	No.	No.	No.	No.
1963					
Newfoundland.....	53,912	19,994	290	226	79,422
Prince Edward Island.....	23,328	11,858	11	117	35,314
Nova Scotia.....	160,482	49,640	1,136	776	212,034
New Brunswick.....	123,035	32,224	710	799	156,768
Quebec.....	1,068,291	290,439	8,897	14,174	1,381,801
Ontario.....	1,926,878	326,556	7,145	7,741	2,268,320
Manitoba.....	247,105	76,023	174	1,504	324,806
Saskatchewan.....	250,183	130,948	243	816	382,190
Alberta.....	393,422	157,420	3,936	5,712	560,490
British Columbia.....	531,116	126,058	3	5,279	662,453
Yukon and Northwest Territories.....	6,144	4,821	50	42	11,057
Canada, 1963.....	4,788,896	1,225,981	22,592	37,186	6,074,655
1964					
Newfoundland.....	65,384	22,001	365	240	87,990
Prince Edward Island.....	24,323	10,586	11	142	35,062
Nova Scotia.....	169,490	51,294	1,147	896	222,827
New Brunswick.....	130,463	33,227	732	889	165,311
Quebec.....	1,115,023	301,824	9,763	14,591	1,441,201
Ontario.....	2,028,528	334,759	7,598	10,354	2,381,219
Manitoba.....	258,076	79,208	198	2,029	339,509
Saskatchewan.....	259,919	135,532	249	1,042	396,742
Alberta.....	408,382	163,447	4,060	7,824	583,713
British Columbia.....	571,807	135,825	3	9,012	716,644
Yukon and Northwest Territories.....	6,466	5,149	66	134	11,815
Canada, 1964.....	5,037,861	1,272,850	24,189	47,133	6,382,033

¹ Includes taxis.

² Includes service cars, road tractors, etc.

³ Included with trucks.

Apparent Supply of Automobiles.—The apparent supply of automobiles in Canada in any year is computed by deducting the number exported from the sum of the production and imports. Statistics regarding retail sales and the financing of motor vehicle sales are given in Chapter XXI on Domestic Trade and Prices.

6.—Apparent Supply of New Automobiles, 1954-63

Year	Cars Made for Sale in Canada		Car Imports		Re-exports of Imported Cars		Apparent Supply	
	Pas-senger	Com-mercial ¹	Pas-senger	Com-mercial	Pas-senger	Com-mercial	Pas-senger	Com-mercial ¹
	No.	No.	No.	No.	No.	No.	No.	No.
1954.....	267,452	59,666	38,509	4,973	84	25	305,877	64,614
1955.....	349,306	69,186	48,546	9,403	22	24	397,830	78,565
1956.....	349,809	85,094	76,200	13,032	45	42	425,964	98,084
1957.....	318,416	64,857	70,796	9,215	65	39	389,147	74,033
1958.....	280,677	55,908	104,195	9,182	190	8	384,682	65,082
1959.....	285,841	63,429	153,932	11,632	549	6	439,224	75,055
1960.....	307,499	66,293	170,653	9,376	179	56	477,973	75,613
1961.....	312,599	60,332	106,865	9,487	700	35	418,764	69,784
1962.....	412,120	78,094	94,655	4,413	194	67	506,581	82,440
1963.....	513,785	93,912	59,634	3,193	391	38	573,028	97,067

¹ Includes Armed Forces vehicles.

Provincial Government Revenue from Motor Vehicles.—The taxation of motive fuels, motor vehicles, garages, drivers, chauffeurs, etc., is an important source of provincial government revenue. In every province licences or permits duly issued by the provincial authorities are required for motor vehicles of all kinds, trailers, operators or drivers, paid chauffeurs, dealers, garages and gasoline and service stations. In 1964 the average cost per motor vehicle for operating taxes and licences was about \$130.

The more important sources from which provincial revenue from motor vehicles is derived are shown in Table 7. Motive fuel tax rates are given in the Public Finance Chapter, Section 2, Subsection 2 on Provincial Taxes; Federal Government revenue from excise and sales taxes is given in the same Chapter, Section 3, Subsection 3 on Revenue from Taxation.

7.—Provincial Revenue from the Registration and Operation of Motor Vehicles, by Province, Years Ended Mar. 31, 1964 and 1965

Year and Province or Territory	Passenger Automobile Licences	Truck, Bus, Trailer and Other Vehicle Licences	Motorcycle Licences	Chauffeur, Driver and Dealer Licences	Public Service Vehicle Tax	Motive Fuel Taxes	Total ¹
	\$	\$	\$	\$	\$	\$	\$
1963-64							
Newfoundland.....	1,065,654	1,537,943	2,954	383,926	570	8,761,882	12,062,808
Prince Edward Island..	394,526	364,626	426	83,828	811	3,165,048	4,025,551
Nova Scotia.....	3,128,454	2,700,980	2	443,638	100,442	20,468,094	27,254,932
New Brunswick.....	2,884,100	2,209,992	3,994	377,147	..	16,902,607	22,696,814
Quebec.....	23,893,692	21,499,157	56,696	3,829,435	1,419,915	149,659,230	202,097,851
Ontario.....	38,324,060	32,568,269	76,468	5,623,502	3,602,741	193,029,163	276,918,967
Manitoba.....	4,029,050	3,523,912	6,343	1,675,980	1,189,217	24,528,368	35,562,251
Saskatchewan.....	3,664,028	4,230,449	3	479,160	—	29,672,244	39,084,006
Alberta.....	5,658,003	8,050,185	4	471,663	181,785	37,478,536	53,110,330
British Columbia.....	10,456,597	9,081,443	23,228	954,683	327,818	46,109,258	67,808,651
Yukon and N.W.T.....	77,670	94,397	137	29,725	61,301	561,084	873,855
Canada, 1963-64...	93,575,834	85,861,353	170,246⁵	14,352,687	6,884,600	530,335,514	741,496,016

For footnotes, see end of table.

7.—Provincial Revenue from the Registration and Operation of Motor Vehicles, by Province, Years Ended Mar. 31, 1964 and 1965—concluded

Year and Province or Territory	Passenger Automobile Licences	Truck, Bus, Trailer and Other Vehicle Licences	Motorcycle Licences	Chauffeur, Driver and Dealer Licences	Public Service Vehicle Tax	Motive Fuel Taxes	Total ¹
	\$	\$	\$	\$	\$	\$	\$
1964-65							
Newfoundland.....	1,127,293	1,563,719	3,231	406,761	494	9,399,789	12,906,354
Prince Edward Island..	454,304	367,514	517	92,408	700	3,309,324	4,242,806
Nova Scotia.....	3,355,386	2,996,780	2	471,915	113,392	21,876,163	29,286,419
New Brunswick.....	3,038,288	2,474,865	4,291	399,996		18,190,997	24,481,572
Quebec.....	25,360,850	23,193,257	58,364	4,282,508	1,604,055	166,038,702	222,596,386
Ontario.....	40,395,378	38,550,328	112,454	2,454,962 ²	4,087,640	233,188,417	323,091,027
Manitoba.....	4,225,089	3,725,065	8,611	163,150 ³	1,284,234	31,697,040	41,777,934
Saskatchewan.....	3,899,966	4,547,871	8	526,499		31,620,222	41,732,528
Alberta.....	6,075,867	8,485,123	4	440,310	229,087	39,970,255	56,569,358
British Columbia.....	11,260,795	9,835,515	39,059	952,887	350,959	50,508,823	73,913,914
Yukon and N.W.T.....	76,383	100,693	413	28,016	95,840	722,363	1,075,970
Canada, 1964-65...	99,269,599	95,840,730	226,940⁵	10,219,412	7,766,401	606,522,095	831,674,268

¹ Includes other items not shown such as transfer of motor vehicles, garage and service station licences, and fines for infractions of motor vehicle laws. ² Included with other motor vehicles. ³ Included with miscellaneous revenues and therefore in total. ⁴ Included with passenger automobiles. ⁵ Not complete.

⁶ The marked decrease from previous year is attributable to changeover from annual to two- or three-year licence renewal basis (see p. 771).

Sales of Motive Fuels.—In order to estimate the total amount of motive fuel purchased in Canada for use in motor vehicles on public streets and highways, it has been necessary to eliminate from the total the amount of motive fuel used for other purposes. Thus, from the total or gross sales, including imports and exports, the following are subtracted to obtain net sales: tax exempt sales to the Federal Government and other consumers, exports, and sales on which refunds were paid. Net sales are thus defined as sales on which a tax or taxes have been paid in full and are considered to approximate the actual amount of motive fuel purchased in Canada for use on public streets and highways. As shown in Table 8, consumption of taxable gasoline, which is used almost entirely for automotive purposes, rose 7.6 p.c. in 1964 and net sales of diesel oil 9.0 p.c.

8.—Sales of Motive Fuels, by Province, 1960-64

Province or Territory	1960 [*]	1961 [*]	1962 [*]	1963 [*]	1964
GASOLINE AND LIQUEFIED PETROLEUM GASES					
	gal.	gal.	gal.	gal.	gal.
Newfoundland.....	35,550,628	38,929,496	42,326,939	46,158,513	51,205,828
Prince Edward Island..	17,872,406	18,098,741	18,964,066	19,687,378	20,753,975
Nova Scotia.....	108,488,604	111,462,514	117,994,058	122,355,774	129,977,561
New Brunswick.....	94,100,176	85,569,846	89,144,726	92,485,963	99,370,660
Quebec.....	747,691,855	788,429,327	843,642,435	899,756,445	938,822,568
Ontario.....	1,402,538,126	1,446,057,743	1,511,424,379	1,477,127,028	1,594,284,345
Manitoba.....	202,499,452	202,098,314	213,294,660	222,604,138	225,783,740
Saskatchewan.....	291,801,705	272,422,024	295,985,892	314,940,380	318,863,410
Alberta.....	515,417,285	522,792,671	565,553,393	422,082,129 ¹	439,543,671
British Columbia.....	347,380,587	352,133,881	361,164,628	380,461,856	422,975,317
Yukon and N.W.T.....	6,634,044	6,282,885	6,870,923	7,764,476	8,478,347
Totals, Gross Sales.....	3,769,974,868	3,844,277,442	4,066,366,099	4,005,424,080	4,250,059,422
Refunds and exemptions.....	775,987,579	735,096,297	809,440,450	565,077,175	548,683,750
Totals, Net Sales.....	2,993,987,289	3,109,181,145	3,256,925,649	3,440,346,905	3,701,375,672

¹ The marked decrease in this figure is attributable to the elimination of 125,000,000 gal. of liquefied petroleum gases used for domestic and industrial heating and power. Net sales are not affected by this change.

8.—Sales of Motive Fuels, by Province, 1960-64—concluded

Item	1960	1961	1962	1963	1964
	DIESEL OIL				
	gal.	gal.	gal.	gal.	gal.
Totals, Net Sales.....	128,954,900	143,042,427	153,570,626	193,180,457	210,642,160

Motor Carriers—Freight.*—Statistics of the common carrier segment of the intercity and rural motor carrier industry have been collected on a continuing basis since 1941. However, as little capital is required to enter the trucking business, many marginal operators are associated with the industry and the large turnover and numerous changes each year have created many problems in the collection of statistics, although these are gradually being overcome. Statistics of contract carriers are available from 1958.

*Statistics are given in more detail in DBS annual report *Motor Carriers—Freight*, Part I (Catalogue No. 53-222) and Part II (Catalogue No. 53-223).

9.—Summary Statistics of Motor Carriers—Freight, 1962 and 1963

Item	Common		Contract	
	1962	1963	1962	1963
Carriers Reporting..... No.	3,282	3,208	1,601	1,556
Property Account—Fixed Assets (motor carrier business)..... \$	298,775,060	324,704,056	71,617,051	70,539,329
Operating Revenues..... \$	373,625,674	442,003,007	84,800,217	82,439,395
Freight—				
Intercity and rural..... \$	361,585,208	428,758,048	80,544,843	77,841,222
Local..... \$	4,817,178	5,145,878	1,699,600	1,965,331
Other..... \$	7,213,288	8,099,081	2,555,774	2,632,842
Operating Expenses..... \$	356,818,736	415,335,544	76,173,469	74,945,837
Maintenance..... \$	49,031,364	56,132,200	13,346,027	12,615,178
Wages of drivers and helpers..... \$	73,818,658	86,734,895	18,313,590	17,028,164
Other (fuel, insurance, fuel taxes, rents and depreciation)..... \$	141,173,341	165,604,118	31,074,111	31,916,593
Licence expense..... \$	12,957,558	14,016,062	3,027,002	2,690,303
Administration and general..... \$	79,837,815	92,848,269	10,412,739	10,695,599
Net Operating Revenues..... \$	16,806,938	26,667,463	8,626,748	7,493,558
Fuel Consumed—				
Gasoline..... '000 gal.	81,336	90,816	24,793	23,286
Diesel oil..... " gal.	31,100	37,230	6,153	6,835
Liquefied petroleum gases..... " "	2	157	23	85
Employees—				
Average employed during year..... No.	29,407	32,558	5,752	5,246
Total salaries and wages..... \$	129,832,813	152,846,145	25,288,003	23,601,592
Working proprietors..... No.	2,579	2,412	1,238	1,146
Withdrawals of working proprietors..... \$	7,928,338	7,005,679	4,411,213	4,354,256
Equipment—				
Trucks with gasoline engines..... No.	10,267	11,406	3,849	3,592
Trucks with diesel engines..... "	311	171	171	196
Road tractors with gasoline engines..... "	7,579	7,779	1,722	1,540
Road tractors with diesel engines..... "	3,159	3,591	575	649
Semi-trailers..... "	16,202	17,252	2,731	2,498
Trailers..... "	1,400	1,809	346	435

Household Goods Movers and Storage Operators.*—Statistics of household goods movers and storage operators, summarized in Table 10, were first presented separately in 1960; before that date, they were included either with motor carriers—freight or with warehousing, depending upon the predominant source of operating revenues of the companies concerned.

10.—Summary Statistics of Household Goods Movers and Storage Operators, 1960-63

Item	1960	1961	1962	1963
Companies Reporting..... No.	163	192	193	227
Investment in Land, Warehouses, Vehicles, etc..... \$	18,016,538	24,506,043	28,861,344	36,529,922
Revenues..... \$	30,962,777	34,315,516	38,482,035	45,860,927
Cartage..... \$	21,882,082	24,329,327	25,980,439	31,052,341
Storage..... \$	4,374,983	4,758,767	5,816,373	6,552,230
Packing..... \$	3,116,592	3,605,636	3,546,449	4,101,846
Other..... \$	1,589,120	1,621,786	3,138,774	4,154,510
Operating Expenses..... \$	30,324,049	33,547,487	36,526,348	44,051,416
Maintenance..... \$	2,226,563	2,426,787	2,835,251	3,224,772
Salaries and wages (charged to operations).... \$	9,925,366	10,692,026	10,917,519	13,209,333
Cartage expenses..... \$	1,884,625	2,269,976	2,607,760	3,790,376
Storage expenses..... \$	2,384,414	2,505,279	2,378,406	2,602,250
Other operating expenses..... \$	13,903,081	15,653,419	17,787,412	21,224,685
Net Operating Revenues..... \$	638,728	768,029	1,955,687	1,809,511
Employees—				
Average employed during year..... No.	3,658	3,906	4,064	4,790
Salaries and wages..... \$	13,701,905	14,937,657	16,220,976	19,758,876
Storage Capacity—				
Household goods..... cu. ft.	27,372,708	30,235,601	31,217,234	36,303,850
Other..... "	1,793,310	4,049,382	5,345,366	9,725,781
Vehicles—				
Trucks..... No.	1,302	1,437	1,578	1,874
Tractors..... "	650	672	741	824
Semi-trailers..... "	647	711	780	803
Trailers..... "	40	39	59	169

Passenger Buses.†—The operations of companies predominantly engaged in passenger bus service are summarized in Table 11. Data refer to the for-hire segment of the industry and only those firms engaged in intercity and rural operations and having an annual gross revenue of \$6,000 or over are covered. Operators predominantly involved in the provision of school bus service are not included nor are airport servicing and urban transit bus operators.

* Statistics are given in more detail in DBS annual report *Moving and Storage, Household Goods* (Catalogue No. 53-221).

† Statistics are given in more detail in DBS annual report *Passenger Bus Statistics* (Catalogue No. 53-215).

11.—Summary Statistics of Intercity and Rural Passenger Bus Companies, 1960-64

NOTE.—Only carriers with an annual gross revenue of \$6,000 or over are included.

Item	1960	1961	1962	1963	1964
Carriers Reporting No.	162	161	159	166	165
Property Account—Fixed Assets \$	65,351,765	66,489,620	70,436,779	76,252,205	75,007,957
Revenues \$	51,076,097	53,122,514	57,057,805	61,236,860	63,170,601
Regular Passenger Service—					
Intercity and rural..... \$	41,773,022	42,969,210	45,051,213	47,960,347	47,945,483
Urban and suburban..... \$	895,396	743,846	686,019	879,221	752,507
Chartered service..... \$	4,202,019	4,722,831	6,125,050	6,597,127	7,498,220
Other transportation revenue..... \$	4,205,660	4,686,627	5,195,522	5,800,165	6,974,391
Operating Expenses \$	46,624,230	49,060,235	51,845,161	55,725,517	57,782,444
Maintenance..... \$	9,300,151	9,208,151	10,927,855	11,212,351	11,270,499
Wages and bonuses of drivers and helpers..... \$	11,791,201	12,321,120	13,388,754	14,624,686	14,875,560
Other transportation expenses..... \$	10,510,437	10,318,002	10,677,733	11,675,266	11,512,062
Operating taxes and licences..... \$	4,175,011	4,322,054	4,237,632	4,496,626	4,658,792
Other operating expenses..... \$	10,847,430	12,890,908	12,613,187	13,716,588	15,465,531
Net Operating Revenues \$	4,451,867	4,062,279	5,212,644	5,511,343	5,388,157
Traffic and Employees—					
Passengers—					
Regular Routes—					
Intercity and rural..... No.	55,592,546	54,052,706	50,591,146	48,638,373	46,646,418
Urban and suburban..... “	7,201,426	5,401,687	4,756,342	5,019,002	4,571,884
Special and chartered service..... “	5,786,121	4,834,020	5,347,173	6,382,415	6,121,076
Bus Miles—					
Regular Routes—					
Intercity and rural..... No.	87,880,424	88,424,751	90,752,096	93,443,880	94,124,250
Urban and suburban..... “	2,401,113	1,642,072	1,664,367	1,881,933	1,712,294
Special and chartered service..... “	7,024,473	8,128,367	10,049,231	11,285,383	12,009,902
Gasoline consumed..... gal.	5,740,358	5,090,177	4,501,251	4,134,529	3,703,651
Diesel oil consumed..... “	8,579,945	9,118,152	9,908,848	10,328,872	9,812,916
Employees—					
Average employed during year..... No.	5,110	5,049	4,662	4,724	4,650
Total salaries and wages..... \$	22,043,886	22,891,346	22,197,171	23,736,153	23,984,134
Working proprietors..... No.	74	57	58	59	48
Withdrawals of working proprietors..... \$	209,737	173,681	150,308	140,663	117,859
Equipment—					
Buses..... No.	2,388	2,340	2,393	2,457	2,513
Gasoline..... “	1,347	1,495	1,191	1,144	1,089
Diesel..... “	1,041	845	1,202	1,313	1,424

Motor Transport Traffic.*—Motor transport traffic in all provinces has been surveyed on a continuing basis since 1957. Quarterly sample selections resulted in about 10 p.c. of total registrations being sampled in 1963. Each quarterly sample was spread over three survey weeks with one third of the sample being used for a seven-day period (Sunday through Saturday) per month.

Excluding vehicles that do not perform normal transportation services, such as cranes, tow trucks, road-building equipment, etc., and government vehicles, the average number of trucks licensed in Canada during 1963 was 1,001,000. Almost 30 p.c. were registered in Ontario and one half were registered in the two Provinces of Ontario and Quebec.

Although for-hire trucks amounted to only 6.1 p.c. of the total registrations, they accounted for 64.3 p.c. of the total net ton-miles performed by all commercial trucks because of the much greater distances travelled by this type of vehicle and the heavier loads carried; their average yearly milage was 24,900 compared with 7,100 for all trucks and their average load 11.0 tons compared with 5.3 tons for all trucks. The predominance of heavier vehicles in the for-hire group also explains why their milage per gallon of gasoline was only 6.0 compared with an average of 9.5 for all vehicles.

* Statistics are given in more detail in DBS annual report *Passenger Bus Statistics* (Catalogue No. 53-215).

Private intercity vehicles accounted for 20.2 p.c. of the total registrations and for 22.9 p.c. of the total net ton-miles performed; their average yearly mileage was 7,100, average load 4.5 tons, and mileage per gallon of gasoline 9.7. Private urban vehicles made up 40.3 p.c. of the total truck population but accounted for only 10.4 p.c. of the total net ton-miles performed by all vehicles. Almost three quarters of these vehicles were registered in the three Provinces of Ontario, Quebec and British Columbia.

Farm trucks amounted to 33.4 p.c. of the commercial vehicle registrations but of course accounted for only a small portion of the total net ton-miles performed. More than three quarters of all trucks registered in Saskatchewan and half of those registered in Manitoba and Alberta were used in farm operations, and more than 70 p.c. of all farm trucks in Canada were registered in the Provinces of Ontario, Saskatchewan and Alberta.

12.—Summary Statistics of Truck Population and Traffic, by Type of Operation, 1962 and 1963

Year and Item		For-Hire	Private			Total
			Intercity	Urban	Farm	
1962						
Average Truck Population.....	No.	60,527	193,568	396,055	324,850	975,000
Atlantic Provinces.....	"	1,727	36,896	25,073	12,104	75,800
Quebec.....	"	16,700	33,379	96,721	39,200	191,000
Ontario.....	"	21,600	64,258	144,143	66,499	296,500
Manitoba.....	"	1,600	3,400	28,600	33,700	67,300
Saskatchewan.....	"	1,800	9,020	13,880	85,600	110,300
Alberta.....	"	10,500	17,472	27,628	76,200	131,800
British Columbia.....	"	6,600	24,143	60,010	11,547	102,300
Miles Travelled.....	'000,000	1,506.7	2,066.6	2,371.9	975.4	6,920.6
Atlantic Provinces.....	"	30.6	319.0	123.5	45.4	518.5
Quebec.....	"	325.7	524.8	738.5	117.4	1,706.4
Ontario.....	"	554.6	688.7	800.6	196.7	2,240.6
Manitoba.....	"	92.8	40.8	134.4	79.7	397.7
Saskatchewan.....	"	83.8	110.3	72.5	221.2	487.8
Alberta.....	"	274.4	171.5	165.5	274.0	885.4
British Columbia.....	"	144.8	211.5	286.9	41.0	684.2
Miles per gallon of gasoline.....	No.	5.8	9.5	10.6	12.5	9.3
Average weight of goods carried.....	ton	11.0	4.6	1.7	1.4	5.3
Average net ton-miles per truck.....	No.	198,900	20,900	4,700	1,600	18,900
Capacity utilized.....	p.c.	56.3	39.3	30.4	28.9	46.6
Average gross ton-miles per truck.....	No.	449,900	62,600	20,700	8,100	51,500
1963						
Average Truck Population.....	No.	60,567	202,711	403,092	334,730	1,001,100
Atlantic Provinces.....	"	1,727	30,179	34,511	12,543	79,000
Quebec.....	"	17,800	38,566	107,034	38,200	201,600
Ontario.....	"	20,600	67,084	138,989	71,927	298,600
Manitoba.....	"	1,600	3,500	29,600	35,700	70,400
Saskatchewan.....	"	1,700	8,657	15,843	86,400	112,600
Alberta.....	"	10,200	25,248	24,252	77,500	135,200
British Columbia.....	"	6,900	31,477	52,363	12,460	103,700
Miles Travelled.....	'000,000	1,508.9	2,196.1	2,349.6	1,038.0	7,092.6
Atlantic Provinces.....	"	31.8	281.4	160.1	44.9	518.2
Quebec.....	"	361.0	532.9	752.2	112.7	1,758.8
Ontario.....	"	511.5	708.6	760.5	236.0	2,216.6
Manitoba.....	"	96.9	43.9	210.7	84.3	440.8
Saskatchewan.....	"	74.4	97.3	74.7	233.9	480.3
Alberta.....	"	267.9	258.5	140.4	232.1	948.9
British Columbia.....	"	165.4	268.5	251.0	44.1	729.0
Miles per gallon of gasoline.....	No.	6.0	9.7	10.7	12.7	9.5
Average weight of goods carried.....	ton	11.0	4.5	1.7	1.3	5.3
Average net ton-miles per truck.....	No.	197,696	21,129	4,823	1,335	18,628
Capacity utilized.....	p.c.	54.9	38.5	30.5	24.8	45.4
Average gross ton-miles per truck.....	No.	448,162	63,946	20,468	8,159	51,032

Urban Transit Systems.—The collection of statistical information on urban transit systems has been extensively reorganized in recent years because of major changes made in the types of vehicles used for mass passenger movement in urban centres. The current series, which was started in 1956, includes operations of motor buses, trolley coaches, street-cars and subway cars carrying passengers in urban and suburban service.

13.—Summary Statistics of Urban Transit Systems, 1960-64

Item		1960	1961	1962	1963	1964
Passenger Fares¹.....	No.	1,029,305,402	987,319,165	995,169,878	988,147,638	994,239,184
Motor bus.....	"	645,353,267	631,202,683	643,307,389	665,481,904	690,881,295
Trolley coach.....	"	191,202,462	175,491,968	172,487,505	149,996,752	133,197,665
Streetcar.....	"	148,863,223	138,585,305	138,550,346	125,937,437	122,023,961
Subway car.....	"	34,663,146	32,993,117	32,874,696	36,491,918	38,055,729
Chartered.....	"	9,223,304	9,046,092	9,946,942	9,168,657	9,662,154
Intercity and rural services (all types of vehicles).....	"	2	2	2	1,070,970	418,380
Vehicle-Miles Run.....	No.	209,099,078	198,537,833	202,445,806	208,121,107	212,804,909
Motor bus.....	"	133,179,494	134,363,690	138,252,679	142,779,355	150,113,461
Trolley coach.....	"	35,136,724	32,899,859	32,862,744	32,390,625	28,748,408
Streetcar.....	"	22,093,057	21,441,041	21,240,370	20,302,402	20,118,497
Subway car.....	"	7,053,302	7,018,476	6,951,856	8,967,566	9,474,168
Chartered.....	"	2,636,501	2,814,767	3,138,157	2,935,243	3,628,719
Intercity and rural services (all types of vehicles).....	"	2	2	2	745,916	721,656
Fuel Consumed—						
Diesel oil.....	gal.	16,847,010	17,266,159	18,385,972	19,820,960	20,713,770
Gasoline.....	"	9,839,892	9,108,194	9,099,746	9,388,808	8,874,984
Liquid petroleum gases.....	"	272,157	334,170	188,000	313,302	277,333
Passenger Vehicles in Service... No.		7,180	7,228	7,386	7,509	7,641
Motor bus.....	"	4,998	5,081	5,267	5,432	5,609
Trolley coach.....	"	1,175	1,174	1,170	1,167	1,122
Streetcar.....	"	867	833	791	740	740
Subway car.....	"	140	140	158	170	170
Finances—						
Total assets.....	\$	475,888,063	285,697,114 ²	292,158,071 ²	298,479,381 ²	262,078,164 ²
Long-term debt.....	\$	286,602,882	176,600,938 ²	179,674,576 ²	188,892,505 ²	145,993,895 ²
Capital stock and surplus.....	\$	116,934,953	74,209,868 ²	74,991,464 ²	75,679,476 ²	80,824,236 ²
Operating revenues.....	\$	140,848,593	138,440,041	141,608,500	142,451,128	151,851,962
Operating expenses.....	\$	135,980,728	137,257,702	141,620,749	146,280,067	151,389,907
Ratio of expenses to revenues... p.c.		96.54	99.14	100.01	102.70	99.70
Employees.....	No.	18,549	18,100	18,157	18,182	17,961
Salaries and wages.....	\$	84,697,981	85,008,940	88,145,609	90,839,804	95,759,397

¹ Initial revenue passenger fares, excluding transfers.

² Breakdown not available; included in other items.

³ Excludes British Columbia Electric Railway Company (British Columbia Hydro and Power Authority from 1962).

Motor Vehicle Traffic Accidents.—There were 363,033 motor vehicle traffic accidents reported in 1964 compared with 336,255 in the previous year. Deaths from such accidents continue their upward trend, numbering 4,210 in 1963 and 4,652 in 1964 as against 2,715 in 1954. Statistics for 1964 are given by province in Table 14, but it should be noted that, although motorists are required by law to report accidents, complete statistics of these accidents are not available for all provinces. According to DBS vital statistics data, there were, in 1964, 4,863 deaths from motor vehicle accidents; of these, 110 occurred in non-traffic motor vehicle accidents on private property.

14.—Motor Vehicle Traffic Accidents, by Province, 1964

Item	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Total
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Accidents Reported	5,975	1,437	12,257	9,215	119,777	111,232	15,762	17,771	30,740	38,368	499	363,033
Fatal.....	63	30	163	157	1,363	1,202	159	178	277	345	6	3,943
Non-fatal.....	1,355	327	2,145	2,404	24,391	36,527	4,959	3,968	5,298	11,110	120	92,624
Property damage ¹	4,557	1,080	9,949	6,654	94,023	73,503	10,634	13,625	25,165	26,913	332	266,466
Persons Killed	73	34	187	181	1,581	1,424	192	229	351	393	7	4,652
Drivers.....	16	14	60	60	544	567	82	111	154	151	3	1,762
Passengers.....	23	8	60	51	477	451	74	95	135	138	3	1,515
Pedestrians.....	33	10	63	66	488	344	31	17	49	94	—	1,195
Bicyclists.....	—	2	3	4	56	38	2	3	4	4	—	116
Motorcyclists and passengers.....	—	—	1	—	16	8	—	—	5	4	—	34
Others.....	1	—	—	—	—	16	3	3	4	2	1	30
Persons Injured	1,950	525	3,027	3,564	36,935	54,569	7,236	6,401	8,308	16,911	215	139,632
Drivers.....	498	199	1,075	1,356	10,505	23,206	3,147	2,746	3,355	6,700	91	52,878
Passengers.....	752	261	1,221	1,473	16,826	22,712	3,170	3,123	3,823	8,101	107	61,579
Pedestrians.....	647	55	622	574	7,588	6,399	664	414	749	1,331	13	19,056
Bicyclists.....	33	10	78	128	1,554	1,366	190	84	149	372	2	3,966
Motorcyclists and passengers.....	4	—	17	10	462	735	57	14	208	299	1	1,507
Others.....	16	—	4	23	—	142	8	20	24	108	1	346
Total Property Damage \$'000	2,629	646	5,049	4,373	..	55,452	6,495	8,418	14,129	20,081	363	117,635 ²

¹ All reported accidents are those resulting in property damage estimated at \$100 or over.
Quebec.

² Excludes

PART IV.—WATER TRANSPORT*

The Canada Shipping Act.—Legislation regarding all phases of shipping is consolidated in the Canada Shipping Act (RSC 1952, c. 29). Under the Act and its amendments the Parliament of Canada accepts full responsibility for the regulation of Canadian shipping.

Section 1.—Shipping Facilities and Traffic

Subsection 1.—Shipping

All Canadian waterways including canals, lakes and rivers are open on equal terms, except in the case of the coasting trade, to the shipping of all countries of the world so that Canadian shipping must compete with foreign flag shipping.

Under the British Commonwealth Merchant Shipping Agreement, all Commonwealth ships enjoy equal privileges with Canadian ships in the carriage of goods and passengers from one port in Canada to another port in Canada, commonly known as the coasting trade. Prior to the completion of the St. Lawrence Seaway most of the domestic Great Lakes traffic was moved in Canadian-registered ships and the rights of other Commonwealth ships in this trade were largely theoretical. After the Seaway was finished the intrusion of other Commonwealth ships, particularly United Kingdom ships, became a reality.

* Information and statistics dealing with this subject have been supplied as follows: aids to navigation, canals, harbours, administrative services, and marine services by the Department of Transport and the National Harbours Board; the St. Lawrence Seaway by the St. Lawrence Seaway Authority; part of the financial statistics by the Department of Public Works; shipping subsidies by the Director of Subsidized Steamship Services, Canadian Maritime Commission; and canal traffic and statistics of shipping by the Public Finance and Transportation Division, Dominion Bureau of Statistics.

Canadian Registry.—Under Part I of the Canada Shipping Act, ships in excess of 15 tons net register and pleasure yachts in excess of 20 tons net are required to be registered; ships of lower tonnage may be registered voluntarily, otherwise they are required to be operated under a Vessel Licence if powered by a motor of 10 hp. or more. Sect. 6 of the Act restricts ownership to British subjects or bodies corporate incorporated under the law of a country of the Commonwealth or of the Republic of Ireland and having their principal place of business in those countries. Under the British Commonwealth Merchant Shipping Agreement, all Commonwealth ships are given the general designation 'British Ship', and a ship that should be but is not registered is not entitled to the privileges accorded to British ships. Ships in the planning stage or in course of construction may be recorded before registry by a Registrar of Shipping at one of the 75 Ports of Registry in Canada.

1.—Vessels on the Canadian Shipping Registry, by Province, as at Dec. 31, 1962-64

NOTE.—Figures from 1935 are given in the corresponding table of previous Year Books beginning with the 1941 edition.

Province or Territory	1962		1963		1964	
	Ships	Gross Tonnage	Ships	Gross Tonnage	Ships	Gross Tonnage
	No.	No.	No.	No.	No.	No.
Newfoundland.....	809	77,194	810	82,784	849	88,735
Prince Edward Island.....	752	20,250	779	20,219	819	20,922
Nova Scotia.....	6,326	148,198	6,600	155,388	6,943	166,439
New Brunswick.....	2,126	78,856	2,232	91,936	2,326	116,092
Quebec.....	2,678	814,444	2,780	892,466	2,912	919,936
Ontario.....	2,425	888,440	2,462	917,653	2,465	914,475
Manitoba.....	105	16,808	109	17,586	119	19,657
Saskatchewan.....	—	—	—	—	1	108
Alberta.....	12	681	12	681	12	686
British Columbia.....	6,755	653,433	7,006	678,598	7,266	709,662
Yukon Territory.....	6	1,435	6	1,435	6	1,435
Totals.....	21,994	2,699,739	22,796	2,858,746	23,718	2,958,147

Shipping Traffic.—The figures for 1955 and 1956 given in Table 2 cover the international coastwise movement of cargo in and out of customs ports. In January 1957 the coverage was extended to include tonnage of vessels and tons of cargo in and out of non-customs ports. Reports are not required for vessels of less than 15 registered net tons, for naval vessels, or (commencing with 1962) for fishing vessels.

2.—Vessels Entered at Canadian Ports, 1955-64

NOTE.—Figures from 1929 are given in the corresponding table of previous Year Books beginning with the 1941 edition.

Year	In International Sea-borne Shipping		In Coastwise Shipping		Totals	
	Vessels	Registered Net Tons	Vessels	Registered Net Tons	Vessels	Registered Net Tons
	No.	No.	No.	No.	No.	No.
1955 ¹	34,432	58,018,365	86,010	67,228,840	120,442	125,247,205
1956 ¹	35,315	63,105,100	88,640	75,220,366	123,955	138,325,466
1957.....	25,352	66,149,552	104,079	76,535,160	139,471	142,684,712
1958.....	30,710	57,738,034	100,234	76,197,625	130,944	133,935,659
1959.....	33,251	67,526,464	110,702	85,536,408	143,953	153,062,872
1960.....	33,397	74,805,002	120,125	88,493,116	153,522	163,298,118
1961.....	31,832	77,140,524	115,339	91,157,708	147,171	168,298,232
1962.....	30,269	81,942,501	112,325	87,767,018	142,594	169,709,519
1963.....	29,169	87,385,238	107,232	87,257,470	136,401	174,642,705
1964.....	29,809	92,799,912	105,186	91,007,726	134,995	183,807,638

¹ Movement in and out of customs ports only (see text above).

3.—Cargoes Loaded and Unloaded at Principal Canadian Ports from Vessels in International Seaborne and Coastwise Shipping, by Province, 1964 with Totals for 1963

NOTE.—Only ports handling over 300,000 tons are listed.

Province and Port	International Seaborne Shipping		Coastwise Shipping		Total 1964	Total 1963
	Loaded	Unloaded	Loaded	Unloaded		
	tons	tons	tons	tons	tons	tons
Newfoundland	2,356,134	794,031	1,828,676	2,128,508	7,107,349	6,775,874
Bell Island	956,884	114	462,741	33,586	1,453,325	1,336,930
Corner Brook	338,495	162,877	48,180	571,516	1,171,068	1,209,737
St. John's	60,678	455,317	71,018	417,592	1,004,605	828,883
Botwood	389,186	14,115	1,267	146,658	551,226	597,478
Humbermouth	—	—	391,120	110	391,230	474,800
Port aux Basques	266	205	40,169	325,879	366,519	369,215
Holyrood	20,300	82,402	225,260	—	327,962	291,076
Prince Edward Island	66,943	36,156	103,092	347,245	553,436	420,311
Charlottetown	9,616	27,620	89,312	327,296	453,844	332,169
Nova Scotia	7,029,427	4,640,453	3,873,932	2,031,322	17,575,134	16,145,760
Halifax	2,828,558	3,799,631	2,061,310	486,346	9,175,845	8,188,491
Sydney	21,479	717,165	1,120,849	1,239,572	3,359,065	3,172,176
Hantsport	2,237,011	1	—	9,850	2,246,862	2,211,673
Port Hawkesbury	722,675	86,154	21,683	2,702	833,214	803,133
Baddeck	248,454	—	225,258	—	473,712	462,522
North Sydney	8,138	90	335,566	35,084	378,878	352,582
New Brunswick	2,384,899	2,853,179	1,223,657	1,185,633	7,647,368	6,575,050
Saint John	1,463,942	2,742,620	1,148,423	478,146	5,833,131	5,254,547
Dalhousie	482,444	21,960	—	—	504,404	273,505
Newcastle	181,936	659	300	147,975	330,870	173,560
Bathurst	18,181	81,716	16,085	187,157	303,139	315,213
Quebec	41,636,459	13,851,473	8,382,962	17,230,797	81,101,691	67,740,601
Montreal	5,548,039	6,431,837	4,250,002	5,333,065	21,562,943	20,725,732
Sept Îles	15,685,431	421,775	308,467	183,260	16,598,933	12,583,060
Port Cartier	10,138,448	65,545	11,113	9,445	10,224,551	7,322,828
Baie Comeau	3,763,544	1,739,910	278,454	2,523,655	8,305,562	6,553,531
Quebec	1,688,533	840,587	187,221	3,371,954	6,088,295	5,720,111
Trois-Rivières	1,882,509	1,083,474	27,841	1,553,785	4,547,609	4,269,350
Sorel	1,679,667	307,301	77,501	2,295,030	4,359,499	2,770,069
Port Alfred	453,751	2,340,387	18,011	500,376	3,312,525	2,656,519
Havre St. Pierre	—	—	1,363,179	8,347	1,371,526	823,184
Contrecoeur	403,151	509,670	—	88,453	1,001,274	1,160,595
Forestville	—	—	898,282	29,771	928,053	855,236
Chicoutimi	1,274	16,274	2,972	494,078	514,598	422,221
Rimouski	23,157	17,180	80,995	294,072	415,404	348,653
Ontario	10,396,868	22,437,028	21,434,916	13,870,313	68,139,125	61,182,865
Port Arthur-Fort William	4,284,236	179,710	12,892,869	1,041,455	18,395,270	14,629,147
Hamilton	201,273	7,775,530	498,197	917,558	9,392,558	8,935,303
Toronto	421,259	3,288,720	231,060	1,772,051	5,713,090	6,166,666
Sault Ste. Marie	233,885	3,931,603	356,596	1,159,085	5,681,160	5,752,680
Sarnia	185,898	1,035,979	2,101,884	470,971	3,794,732	3,445,048
Port Colborne	1,356,108	455,849	577,848	1,173,348	3,563,153	2,852,465
Windsor	370,309	1,043,495	240,888	402,242	2,056,934	1,915,225
Port Credit	—	1,423,737	224,401	324,253	1,972,391	1,518,614
Clarkson	3,200	27,080	395,901	1,253,660	1,679,841	1,726,859
Pictou	800,917	88,497	477,864	23,808	1,391,086	1,098,090
Colborne	—	—	1,128,073	—	1,126,073	1,124,441
Prescott	—	405,430	196,262	502,830	1,104,522	1,495,948
Little Current	598,244	424,569	36,893	40,278	1,099,984	1,390,131
Goderich	176,650	23,176	197,670	472,001	874,497	891,200
Thorold	143,742	270,760	38,067	371,836	824,405	831,037
Midland	—	71,175	263	661,632	733,070	612,500
Depot Harbour	708,428	—	—	18,850	727,278	597,682
Kingston	10,306	123,307	179,291	369,620	632,524	648,508
Walkerville	—	279,492	31,358	160,438	471,288	502,707
Michipicoten Harbour	251,535	27,406	145,205	44,190	468,336	403,877
Niagara Bar	42,490	—	382,678	—	425,168	262,110

3.—Cargoes Loaded and Unloaded at Principal Canadian Ports from Vessels in International Seaborne and Coastwise Shipping, by Province, 1964 with Totals for 1963—concluded

Province or Territory and Port	International Seaborne Shipping		Coastwise Shipping		Total 1964	Total 1963
	Loaded	Unloaded	Loaded	Unloaded		
	tons	tons	tons	tons	tons	tons
Ontario—concluded						
Owen Sound.....	—	39,741	476	378,609	418,826	305,591
Point Pelee.....	379,647	—	15,374	—	395,021	303,143
St. Catharines.....	8,150	92,665	—	284,992	395,807	313,364
Port Stanley.....	—	203,991	29,262	117,931	351,184	395,653
Parry Sound.....	10,715	11,971	—	326,760	349,446	206,426
Port Burwell.....	—	319,821	—	16,547	336,368	264,217
Manitoba	653,430	37,775	18,530	2,257	711,992	775,817
Churchill.....	653,430	37,775	18,524	1,839	711,568	775,817
British Columbia	18,986,547	2,928,165	15,129,679	15,028,314	52,072,705	46,858,222
Vancouver.....	10,211,954	1,377,386	4,558,037	3,908,258	20,055,635	17,852,181
New Westminster.....	1,196,262	193,239	1,824,487	1,157,045	4,371,033	3,880,429
Victoria.....	1,374,462	124,818	252,746	911,691	2,663,717	2,461,037
Britannia Beach.....	44,047	—	835,399	513,557	1,393,003	1,231,482
Duncan Bay.....	247,886	20,945	107,951	997,968	1,374,750	851,976
Powell River.....	383,498	33,997	221,124	729,611	1,368,240	1,325,846
Prince Rupert.....	638,292	297,635	50,653	283,199	1,269,779	997,229
Nanaimo.....	638,198	66,636	180,953	368,696	1,254,483	955,620
Harmac.....	653	25,195	126,092	1,089,145	1,241,085	1,074,152
Ocean Falls.....	83,345	84,373	317,913	691,129	1,176,760	1,308,923
Crofton.....	266,358	51,068	103,387	587,586	1,008,399	627,694
Port Alberni.....	618,421	18,698	36,885	224,599	898,613	1,799,993
Port Mellon.....	51,044	3,180	48,909	792,394	895,527	954,065
Howe Sound.....	—	—	426,289	465,903	892,192	814,982
Ladysmith.....	—	—	756,535	9,280	765,815	693,190
Toquart.....	763,565	—	—	212	763,777	716,293
Kitimat.....	98,297	452,086	59,814	75,951	686,148	560,726
North Arm Fraser River.....	—	—	32,927	626,667	659,594	535,422
Chemainus.....	229,296	6,767	412,012	8,416	656,491	665,308
Port Moody.....	585,221	3,786	—	—	589,007	417,219
Texada.....	492,955	—	23	4,732	497,710	456,535
Courtenay.....	—	—	434,258	42,011	476,269	381,983
Campbell River.....	149,619	23,015	39,006	253,460	465,100	317,791
Quatsino.....	125,010	114,361	108,468	76,621	424,460	186,413
Jervis Inlet.....	—	—	254,794	122,265	377,059	162,244
Jedway.....	315,676	—	185	6,923	322,784	—
Bamberton.....	—	16,092	264,562	20,403	301,057	268,376
Northwest Territories	—	—	1,923	40,394	42,317	62,518
Totals	83,510,707	47,578,260	51,997,367	51,864,783	234,951,117	206,537,048

The freight movement through a large port takes a number of different forms. These include cargoes loaded for and unloaded from foreign countries and cargoes loaded and unloaded in coastwise shipping, i.e., domestic freight moving between Canadian points. There is, as well, the in-transit movement in vessels that pass through the harbour without loading or unloading and the movement from one point to another within the harbour, which in many ports amounts to a large volume.

Shipping statistics, which cover traffic in and out of both customs and non-customs ports, do not include freight in transit or freight moved from one point to another within the harbour. Table 4 shows the principal commodities loaded and unloaded in foreign and coastwise shipping at the ten ports handling the largest cargo volumes in 1964. These ports handled 61.7 p.c. of all Canada's international shipping and 42.8 of the coastwise trade. The specific commodities shown are those transported in volume and often in bulk form.

4.—Principal Commodities in Water-Borne Cargo Loaded and Unloaded at Ports Handling the Largest Tonnages in 1964

NOTE.—Only commodities totalling over 50,000 tons are listed.

Port and Commodity	International Seaborne Shipping		Coastwise Shipping		Total Seaborne and Coastwise
	Loaded	Unloaded	Loaded	Unloaded	
	tons	tons	tons	tons	tons
Montreal	5,548,039	6,431,837	4,250,002	5,333,065	21,562,943
Wheat.....	2,795,166	75,575	—	3,488,712	6,359,453
Fuel oil.....	27,867	1,474,739	2,293,446	56,867	3,852,919
Crude petroleum.....	—	1,461,280	—	—	1,461,280
Gasoline.....	60,045	140,802	905,392	4,000	1,110,239
Corn.....	310,960	451,862	—	5,826	768,648
Coal, bituminous.....	17	372,159	—	143,686	515,862
Soybeans.....	226,801	203,364	—	48,585	478,750
Gypsum.....	—	—	6,150	356,523	362,673
Sugar.....	34	304,493	650	3	305,180
Cement—natural and portland.....	194	6,103	272,745	6,231	285,273
Barley.....	31,924	21,176	—	182,499	235,599
Flaxseed.....	93,749	—	—	136,087	229,836
Lubricating oils and greases.....	25	47,053	156,132	5	203,215
Salt.....	11	89,255	—	75,256	164,522
Oats.....	11,366	—	240	138,272	149,878
Wheat flour.....	125,067	—	2,068	423	127,558
Iron and steel scrap.....	106,035	60	4,000	805	110,900
Sulphur.....	52,616	57,045	—	—	109,661
Structural shapes and sheet piling.....	3,095	73,536	10,976	7,772	95,379
Molasses, crude.....	—	80,026	—	—	80,026
Chemicals, <i>n.e.s.</i>	14,439	17,098	5,668	38,128	75,333
Iron ore and concentrates.....	—	73,178	—	—	73,178
Fluorspar.....	22,796	34,468	8,829	—	66,093
Steel—bar and rod.....	371	62,763	150	1,061	64,345
Petroleum and coal products, <i>n.e.s.</i>	—	32,351	65	27,358	59,774
Metallic ores and concentrates, <i>n.e.s.</i>	27,664	30,567	—	—	58,231
Copper, unalloyed—bar, ingot, pig and slab.....	54,279	—	—	3,794	58,073
Fertilizers and fertilizer materials, <i>n.e.s.</i>	7,795	34,615	10,203	—	52,613
Other commodities not listed.....	1,575,723	1,288,269	573,288	611,172	4,048,452
Vancouver	10,211,954	1,377,386	4,558,037	3,908,258	20,055,635
Wheat.....	4,339,663	—	—	—	4,339,663
Pulpwood.....	529,585	19,729	1,931,388	177,634	2,658,336
Sand and gravel.....	—	320,075	107	1,745,061	2,066,143
Lumber and timber.....	1,187,225	15,122	46,067	129,182	1,377,596
Logs, round timber.....	103,269	81,212	41,195	805,406	1,031,082
Hogged fuel.....	150,450	—	740,780	1,560	892,790
Fuel oil.....	18,021	17,609	846,342	1,389	883,361
Barley.....	632,294	—	—	—	632,294
Coal, bituminous.....	575,612	—	63	—	575,675
Sulphur.....	540,427	—	34,793	300	575,520
Wood pulp.....	137,303	430	250	384,308	522,291
Fertilizers and fertilizer materials, <i>n.e.s.</i>	440,922	2,661	3,584	42	447,209
Wheat flour.....	407,429	278	6	—	407,713
Newsprint paper.....	19,820	419	174	386,494	406,907
Gasoline.....	9,069	756	328,208	427	336,460
Chemicals, <i>n.e.s.</i>	13,244	48,387	202,570	2,226	266,427
Flaxseed.....	178,408	—	—	—	178,408
Oats.....	149,461	—	—	—	149,461
Copper ore, concentrates and matte.....	147,597	—	—	150	147,747
Cement—natural and portland.....	15,415	1,839	4,734	121,665	143,653
Salt.....	—	130,104	10,282	—	140,386
Rapeseed.....	107,315	—	—	—	107,315
Asbestos, unmilld.....	31,519	53,075	45	—	84,639
Sugar.....	—	83,266	—	—	83,266
Rye.....	55,058	—	—	—	55,058
Other commodities not listed.....	422,848	601,524	369,449	152,414	1,546,235
Port Arthur—Fort William	4,284,236	179,710	12,892,869	1,041,455	18,398,270
Wheat.....	219,943	—	10,367,773	—	10,587,716
Iron ore and concentrates.....	3,133,229	—	528,286	—	3,661,515
Barley.....	267,596	—	780,464	—	1,048,060
Oats.....	19,065	—	545,069	—	564,134
Pulpwood.....	74,270	—	—	196,600	270,870
Flaxseed.....	82,469	—	185,400	—	267,869
Fuel oil.....	—	—	7,236	203,866	211,102
Newsprint paper.....	170,529	8	—	—	170,537
Wheat flour.....	28,305	—	130,116	20	158,441
Rye.....	106,661	—	33,420	—	140,081
Gasoline.....	—	—	—	126,083	126,083

4.—Principal Commodities in Water-Borne Cargo Loaded and Unloaded at Ports Handling the Largest Tonnages in 1964—continued

Port and Commodity	International Seaborne Shipping		Coastwise Shipping		Total Seaborne and Coastwise
	Loaded	Unloaded	Loaded	Unloaded	
	tons	tons	tons	tons	tons
Port Arthur—Fort William—concluded					
Hulls, screenings, chaff and scourings	10,686	—	110,083	—	120,769
Coal, bituminous	—	97,024	—	—	97,024
Grain feeds, <i>n.e.s.</i>	3,143	—	90,738	—	93,881
Complete feeds and feed concentrates	—	—	60,715	—	60,715
Malt	7,662	—	45,872	—	53,534
Other commodities not listed	163,678	82,678	7,697	514,886	768,939
Sept Îles	15,685,431	421,775	398,467	183,260	16,598,933
Iron ore and concentrates	15,637,818	—	283,030	—	15,920,848
Fuel oil	—	307,829	—	2,448	310,277
Gasoline	—	24,997	56	25,499	50,552
Other commodities not listed	47,613	88,949	25,381	155,313	317,256
Port Cartier	10,138,448	65,545	11,113	9,445	10,224,551
Iron ore and concentrates	10,137,504	—	8,757	—	10,146,261
Fuel oil	—	64,179	—	—	64,179
Other commodities not listed	944	1,366	2,356	9,445	14,111
Hamilton	201,273	7,775,530	498,197	917,558	9,392,558
Iron ore and concentrates	—	4,061,760	—	55,334	4,117,094
Coal, bituminous	—	3,177,688	—	—	3,177,688
Fuel oil	—	47,828	10,670	470,627	529,125
Wheat	—	—	50,898	154,072	204,970
Sand and gravel	—	18,290	—	126,305	144,595
Soybeans	453	114,478	—	—	114,931
Steel—plate, sheet and strip	78,806	9,119	1,450	492	89,867
Iron and steel scrap	206	79,741	—	—	79,947
Chemicals, <i>n.e.s.</i>	13,573	29,514	13,230	5,600	61,917
Fluorspar	7,778	41,399	—	7,309	56,486
Other commodities not listed	100,457	195,713	421,949	97,819	815,938
Halfax	2,828,558	3,799,631	2,061,310	486,346	9,175,845
Crude petroleum	—	3,112,215	—	—	3,112,215
Fuel oil	12,201	422,277	1,331,869	114,341	1,880,688
Gypsum	1,674,430	—	103,300	—	1,777,730
Wheat	555,933	—	35	147,743	703,711
Gasoline	1,120	44,877	550,158	63,046	659,201
Wheat flour	127,613	—	3,039	3,867	134,519
Cement—natural and portland	2	331	111	71,595	72,039
Lumber and timber	48,302	3,069	438	1,959	53,768
Other commodities not listed	408,957	216,862	72,360	83,795	781,974
Baie Comeau	3,763,544	1,739,910	278,454	2,523,655	8,305,563
Wheat	2,284,253	312,252	—	2,039,561	4,636,066
Corn	756,756	706,041	—	—	1,462,797
Soybeans	219,090	225,244	—	—	444,334
Pulpwood	78,557	—	254,591	—	333,148
Cement—natural and portland	—	—	—	246,440	246,440
Newsprint paper	227,190	137	—	—	227,327
Barley	101,137	101,256	—	2,133	204,526
Aluminum ore and concentrates	—	183,160	—	—	183,160
Fuel oil	—	91,647	2,200	72,474	166,321
Aluminum—bar, ingot, pig and slab	48,591	—	13,053	—	61,644
Other commodities not listed	47,970	120,173	8,610	163,047	313,992
Quebec	1,688,533	840,587	187,221	3,371,954	6,088,295
Wheat	609,666	37,451	—	703,999	1,351,116
Fuel oil	—	569,270	36,547	657,266	1,263,083
Pulpwood	16,810	136	—	991,107	1,008,053
Gasoline	—	13,328	4,646	483,063	501,037
Asbestos, unmilled	301,045	—	—	—	301,045
Newsprint paper	291,871	—	—	—	291,871
Coal, bituminous	7	9,429	600	202,825	212,861
Zinc ore and concentrates	192,939	—	—	—	192,939
Barley	—	—	—	144,386	144,386
Oats	—	—	30	123,861	123,891
Wood pulp	77,891	—	—	125	78,016
Cement—natural and portland	—	937	69,659	—	70,596
Corn	—	49,530	—	7,950	57,480
Iron and steel scrap	45,265	—	—	11,186	56,451
Other commodities not listed	153,039	160,506	75,739	46,186	435,470

4.—Principal Commodities in Water-Borne Cargo Loaded and Unloaded at Ports Handling the Largest Tonnages in 1964—concluded

Port and Commodity	International Seaborne Shipping		Coastwise Shipping		Total Seaborne and Coastwise
	Loaded	Unloaded	Loaded	Unloaded	
	tons	tons	tons	tons	
Saint John	1,463,942	2,742,620	1,148,423	478,146	5,833,131
Crude petroleum.....	—	2,146,027	—	—	2,146,027
Fuel oil.....	17,228	56,168	767,740	290,713	1,131,849
Wheat.....	563,324	—	—	—	563,324
Gasoline.....	—	18,101	330,087	152,250	500,438
Sugar.....	1,415	241,810	—	—	243,225
Fertilizers and fertilizer materials, <i>n.e.s.</i>	112,573	37,060	—	—	149,633
Wheat flour.....	87,592	—	—	—	87,592
Lumber and timber.....	63,494	—	4	4,242	67,740
Potatoes.....	64,015	—	—	—	64,015
Other commodities not listed.....	554,301	243,454	50,592	30,941	879,288

Subsection 2.—Harbours

Water transportation cannot be studied with any degree of completeness without taking into consideration the co-ordination of land and water transportation at many of the ports. Facilities provided to enable interchange movements include the necessary docks and wharves, some for passenger traffic but most of them for freight, warehouses for the handling of general cargo, and special equipment for such bulk freight as lumber, coal, oil and grain. Facilities may include cold storage warehouses, harbour railway and switching connections, grain elevators, coal bunkers, oil storage tanks and, in the chief harbours, vessel repair docks.

Ten of the principal harbours of Canada are administered by the National Harbours Board (two in Newfoundland since Jan. 1, 1965). Eleven other major harbours come under the supervision of the Department of Transport and are administered by harbour commissioners that include municipal as well as Federal Government appointees. In addition, there are about 300 public harbours under the direct supervision of the Department of Transport, administered under rules and regulations approved by the Governor General in Council. Harbour masters have been appointed by the Minister of Transport for 110 of these harbours, their remuneration being paid from fees levied on vessels under the terms of the Canada Shipping Act.

Throughout the country there are several thousand minor wharves and breakwaters administered by the Department of Transport under the Government Harbours and Piers Act. These facilities are for the accommodation of smaller freight vessels and commercial fishing craft and are generally under the direct supervision of wharfingers whose remuneration is determined as a percentage of wharfage fees collected. Small non-revenue wharves are under the general supervision of the Department of Transport District Marine Agents. At most ports, in addition to the public harbour facilities operated by the operating authorities, there are dock and handling facilities owned by private companies such as railway, pulp and paper, oil and sugar industries.

National Harbours Board.—The National Harbours Board, a Crown corporation established in 1936, is charged with the administration and operation of the following properties: port facilities such as wharves and piers, transit sheds, grain elevators, cold storage warehouses, terminal railways, etc., at the harbours of St. John's and Bay d'Espoir (since Jan. 1, 1965), Halifax, Saint John, Chicoutimi, Quebec, Trois-Rivières, Montreal, Vancouver and Churchill; grain elevators at Prescott and Port Colborne; and the Jacques Cartier and Champlain Bridges at Montreal. Facilities at the larger harbours are listed in Table 5, and summary traffic statistics for 1963 and 1964 in Table 6. All ports, with the exception of Churchill, established new traffic records in 1964. Operating revenues and expenditures for 1963 and 1964 are given in Table 22, p. 808.

5.—Facilities of the Larger Harbours Administered by the National Harbours Board, as at Dec. 31, 1964

NOTE.—The facilities at these ports include those under the control of other agencies as well as those of the National Harbours Board.

Item	Halifax	Saint John	Quebec	Trois-Rivières	Montreal	Vancouver
Minimum depth of approach channel..... ft.	51	30	30	35	35	39
Harbour railway.....miles	31	64	23	5	61.5	75
Piers, wharves, jetties, etc.... No.	88	34	43	18	130	109
Length of berthing..... ft.	35,445	24,550	34,900	9,188	67,898	38,572
Transit-shed floor space.....sq. ft.	1,473,354	938,000	739,000	479,434	3,571,990	1,552,600
Cold storage warehouse capacity.....cu. ft.	1,719,000	900,000	1,500,000 ¹	—	2,900,000	3,633,297
Grain Elevators—						
Capacity..... bu.	4,152,500	3,000,000	8,000,000	9,300,000	22,262,000	21,775,500
Loading rate.....bu. per hr.	90,000	150,000	90,000	55,000	728,000	280,000
Floating crane capacity..... tons	100	65	75	—	90	35
Coal dock storage capacity... "	32,000	—	3,000,000 ²	400,000	275,000	—
Oil tank storage capacity..... gal.	247,480,000	41,346,500	1,760,000 ³	11,296,150	1,136,657,175	234,589,277

¹ Main warehouse 500,000 cu. ft., fish house 1,000,000 cu. ft.

² sq. ft.

³ bbl.

6.—Summary Traffic Statistics for Harbours Administered by the National Harbours Board, 1963 and 1964

Port or Elevator	Vessel Arrivals	Vessel Tonnage	Cargo Tonnage	Grain Elevator Deliveries
	No.	No.	No.	bu.
Halifax.....1963	3,274	6,053,327	8,573,832	17,620,285
.....1964	3,377	6,710,705	9,628,658	23,288,469
Saint John.....1963	1,697	3,915,335	5,911,625	21,728,427
.....1964	1,888	4,163,850	6,262,591	22,053,690
Chicoutimi.....1963	162	244,012	429,917	...
.....1964	156	281,313	477,524	...
Quebec.....1963	3,606	7,942,176	5,729,023	40,988,409
.....1964	3,469	7,742,000	6,258,920	44,081,825
Trois-Rivières.....1963	2,790	4,149,167	5,009,101	49,069,895
.....1964	2,325	3,963,914	5,192,812	54,917,501
Montreal.....1963	5,656	18,304,273	22,654,403	153,458,263
.....1964	6,016	19,704,942	23,070,920	168,713,104
Prescott.....1963	...	...	...	26,500,651
.....1964	...	...	...	15,582,409
Port Colborne.....1963	...	...	...	10,853,600
.....1964	...	...	...	12,908,529
Churchill.....1963	88	330,872	778,465	23,262,463
.....1964	72	296,059	719,382	22,067,711
Vancouver.....1963	21,178	17,679,423	16,923,168	179,503,551
.....1964	21,462	18,670,875	19,793,810	204,013,205
Totals.....1963	38,451	58,618,585	66,009,534	522,985,544
.....1964	38,765	61,533,658	71,404,617	567,626,443

Subsection 3.—Canals

The canals and canalized waters of Canada under the jurisdiction of the Department of Transport, together with those under the jurisdiction of the St. Lawrence Seaway Authority, comprise a series of waterways providing navigation for 1,875 miles inland from salt water.

Those included under the two classifications—Seaway canals and Department of Transport canals—are listed in Table 7 with their locations, lengths and lock complement. In addition to these, the federal Department of Public Works administers the St. Andrew's Lock (length, width and draught, respectively, 215, 45 and 17 feet) on the Red River at Selkirk, Man., and the lock at Poupore, Que. A few small locks are operated by provincial authorities.

During 1964, 93,276,850 tons of freight and 23,155 vessels passed through the canals as compared with 74,585,427 tons of freight and 21,811 vessels during 1963. In addition to freight and passenger vessels, thousands of pleasure craft are locked through the canals. Vessels locking at Sault Ste. Marie during 1964 carried 131,396 passengers as compared with 142,663 in 1963.

7.—Lengths of Channels and Dimensions of Locks under the Control of the St. Lawrence Seaway Authority or the Department of Transport

Name	Location	Length of Channel	Locks			
			No.	Minimum Dimensions		
				Length	Width	Depth
Seaway Canals ¹		miles		ft.	ft.	ft.
Main Route—						
South Shore.....	Montreal to Caughnawaga.....	20	2	766	80	30
Beauharnois.....	Melocheville to Lake St. Francis.....	15	2	766	80	30
Iroquois.....	Iroquois Point.....	1	1	766	80	30
Welland.....	Port Weller, Lake Ontario, to Port Colborne, Lake Erie.....	27.60	8	859	80	30
Non-toll—						
Lachine (not through canal).....	Montreal to Lachine.....	8	3	270	45	14
Cornwall (not through canal).....	Cornwall to closure dyke.....	3.50	4	270	43.67	14
Sault Ste. Marie.....	St. Mary's Rapids, Sault Ste. Marie.....	1.38	1	900	60	18.25
Department of Transport Canals						
Atlantic Area—						
Canso Canal.....	Canso Causeway, N.S.....	0.78	1	820	80	32
St. Peter's.....	St. Peter's Bay to Bras d'Or Lakes, Cape Breton, N.S.....	0.50	1	300	47.4	17
Richelieu River—						
St. Ours.....	St. Ours, Que.....	0.12	1	339	45	12
Chambly.....	Chambly to St. Jean, Que.....	11.76	9	125.1	23.3	6.5
Ottawa and Rideau Rivers—						
St. Anne.....	Junction of St. Lawrence and Ottawa Rivers.....	0.62	1	200	45	9
Carillon.....	Carillon Rapids, Ottawa River.....	0.50	1	200	45	9
Rideau.....	Ottawa to Kingston.....	123.53	47	134	33	5.5
	Rideau Lake to Perth (Tay Branch).....	6.12	2	134	33	5.5
Lake Ontario to Georgian Bay—						
Trent.....	Trenton to Peterborough lock, Peter- borough.....	88.74	18	175	33	8 ²
	Peterborough lock to Big Chute.....	143.71	24	134	33	6
	Big Chute Marine Railway.....	—	—	—	—	4
	Big Chute to Port Severn.....	8.11	1	100	25	6
	Sturgeon Lake to Lindsay (Scugog Branch).....	10.00	1	142	33	6
	Lindsay to Port Perry (Scugog Branch).. Isthmus of Murray, Bay of Quinte.....	25.00	—	—	—	4.5
Murray.....		7.53	—	—	—	8.5 ³

¹ Minimum depth of Seaway canals is 27 feet and minimum width 200 ft. Wiley-Dondero canal and two locks near Massena, N.Y., are in United States territory; dimensions are approximately the same as those of Canadian facilities. ² Notice must be given by vessels of more than six-foot draught. ³ With Lake Ontario at elevation of 243 feet.

8.—Traffic through Canadian Canals, by Registry of Vessel, Navigation Seasons 1955-64

NOTE.—Figures include duplications where vessels pass through two or more canals. Figures from 1886 are given in the corresponding table of previous Year Books beginning with the 1902 edition.

Navigation Season	Canadian		United States		United Kingdom		Other	
	Vessels	Registered Tonnage	Vessels	Registered Tonnage	Vessels	Registered Tonnage	Vessels	Registered Tonnage
	No.	No.	No.	No.	No.	No.	No.	No.
1955.....	22,758	27,709,232	3,950	3,798,290	200	132,858	1,264	1,044,774
1956.....	27,473	31,019,188	3,776	3,675,511	267	186,978	1,349	1,141,259
1957.....	24,191	27,726,358	3,324	3,802,909	332	221,254	1,589	1,364,205
1958.....	21,763	26,635,559	3,216	3,029,624	302	198,926	2,170	1,793,309
1959.....	21,363	28,706,462	4,819	4,233,936	1,125	3,130,140	3,252	7,321,449
1960.....	19,816	28,963,294	5,046	3,660,931	1,303	3,971,587	3,464	9,455,739
1961.....	17,332	32,531,256	3,307	2,515,262	1,845	6,294,753	3,496	10,065,901
1962.....	13,836	31,677,612	3,524	4,045,470	1,938	6,769,909	3,538	11,017,809
1963.....	13,821	38,040,238	3,106	4,016,111	1,637	6,932,454	3,247	10,248,060
1964.....	14,256	40,025,355	2,906	5,461,310	2,043	9,494,484	3,950	13,176,847

9.—Freight Traffic through Canadian Canals, by Origin of Cargo, Navigation Seasons 1955-64

NOTE.—Figures include duplications where cargoes pass through two or more canals. Figures from 1886 are given in the corresponding table of previous Year Books beginning with the 1902 edition.

Navigation Season	Canada		United States		Britain		Other		Total
	Tons	P.C. of Total	Tons	P.C. of Total	Tons	P.C. of Total	Tons	P.C. of Total	Tons
1955.....	20,002,540	57.4	14,177,878	40.7	120,827	0.3	572,953	1.6	34,874,198
1956.....	24,698,001	61.7	14,457,217	36.1	106,448	0.3	754,899	1.9	40,016,565
1957.....	21,459,552	57.6	15,021,930	40.3	151,550	0.4	597,317	1.6	37,230,349
1958.....	21,832,526	62.2	12,177,376	34.7	223,059	0.6	863,626	2.5	35,096,587
1959.....	30,829,746	60.4	17,134,694	33.5	326,992	0.6	2,784,700	5.5	51,076,132
1960.....	28,886,228	54.6	20,993,117	39.6	332,794	0.6	2,734,744	5.2	52,946,883
1961.....	31,487,898	55.1	23,175,964	40.5	315,991	0.5	2,242,843	3.9	57,222,696
1962.....	33,972,361	53.4	26,228,794	41.3	805,831	1.3	2,561,305	4.0	63,568,291
1963.....	41,976,843	56.3	28,431,960	38.1	1,054,929	1.4	3,121,695	4.2	74,585,427
1964.....	56,298,982	60.3	31,488,638	33.8	1,089,385	1.2	4,399,845	4.7	93,276,850

**10.—Tonnage of Products Carried by Canal, classified by Commodity Section,¹
Navigation Seasons 1963 and 1964**

NOTE.—Figures include duplications where cargoes pass through two or more canals.

Year and Canal	Food, Feed, Beverages and Tobacco	Crude Materials, Inedible	Fabricated Materials, Inedible	End Products, Inedible	Miscel- laneous Freight	Domestic Package Freight	Total
	tons	tons	tons	tons	tons	tons	tons
1963							
Sault Ste. Marie	156,450	133,147	425,102	—	8,045	87,261	810,005
Welland	14,713,784	21,716,203	4,144,803	243,006	78,804	428,929	41,325,529
St. Lawrence River	13,908,971	11,895,451	4,310,452	302,598	196,600	550,260	31,164,332
Richelieu River	—	—	67,687	—	857	—	68,544
St. Peter's	360	—	—	—	214	—	574
Murray	—	—	—	—	—	—	—
Ottawa River	—	—	5,641	2,390	—	—	8,031
Rideau	—	—	—	—	—	—	—
Trent	—	—	62	—	—	—	62
St. Andrew's	1,562	400	1,554	51	247	—	3,814
Canso	175,260	254,323	755,444	—	10,509	—	1,204,536
Totals, 1963 ...	28,956,387	33,999,524	9,710,745	548,045	304,276	1,066,450	74,585,427
1964							
Sault Ste. Marie	95,339	158,780	562,293	—	8,628	141,597	966,637
Welland	17,332,721	28,241,436	4,970,834	283,057	64,930	523,904	51,416,382
St. Lawrence River	16,485,395	16,394,652	5,374,405	356,238	128,214	701,269	39,440,173
Richelieu River	—	—	91,675	—	463	—	92,138
St. Peter's	304	110	—	—	67	—	481
Murray	—	—	—	—	—	—	—
Ottawa River	—	—	10,923	1,758	—	—	12,681
Rideau	—	—	—	—	—	—	—
Trent	—	—	64	—	—	—	64
St. Andrew's	1,415	—	1,403	39	150	—	3,007
Canso	204,671	265,703	841,480	—	33,433	—	1,345,287
Totals, 1964 ...	34,119,845	45,060,681	11,852,577	641,092	235,885	1,366,770	93,276,850

¹ Standard commodity classification.

**11.—Freight Traffic through Canadian Canals, by Direction and Origin, Navigation Season
1964**

NOTE.—Figures include duplications where cargoes pass through two or more canals.

Canal	Traffic by Direction		Origins of Cargo			Total Cargo
	Up	Down	Canada	United States	Other Countries	
	tons	tons	tons	tons	tons	tons
Sault Ste. Marie	390,574	576,063	852,599	112,019	2,019	966,637
Welland	18,555,000	32,861,382	27,647,073	21,478,032	2,291,277	51,416,382
St. Lawrence	18,616,126	20,824,047	26,416,945	9,755,729	3,267,499	39,440,173
Richelieu River	85,746	6,392	91,672	466	—	92,138
St. Peter's	142	339	481	—	—	481
Murray	—	—	—	—	—	—
Ottawa River	11,016	1,665	12,681	—	—	12,681
Rideau	—	—	—	—	—	—
Trent	26	38	64	—	—	64
St. Andrew's	1,113	1,894	3,007	—	—	3,007
Canso	865,158	480,129	1,274,460	42,392	28,435	1,345,287
Totals	38,524,901	54,751,949	56,298,982	31,388,638	5,589,230	93,276,850

12.—St. Lawrence-Great Lakes Traffic using St. Lawrence, Welland and Sault Ste. Marie Canals, 1963 and 1964

NOTE.—Duplications eliminated wherever possible.

Canals Used	1963			1964		
	Up-bound Freight	Down-bound Freight	Total	Up-bound Freight	Down-bound Freight	Total
	tons	tons	tons	tons	tons	tons
Traffic using Canadian St. Lawrence-Great Lakes System	16,159,172	30,420,112	46,579,284	37,521,281	54,211,692	91,732,973
St. Lawrence and Ottawa.....	1,957	—	1,957	—	—	—
St. Lawrence only.....	2,863,218	1,784,017	4,647,235	2,956,875	1,522,515	4,479,390
St. Lawrence and Welland.....	10,680,607	15,606,404	26,287,011	31,187,544	38,443,929	69,631,473
St. Lawrence, Welland and Sault Ste. Marie.....	8,923	63,573	72,496	72,609	93,954	166,563
Welland only.....	2,413,200	12,421,638	14,834,838	2,895,886	13,574,151	16,470,037
Welland and Sault Ste. Marie.....	36,002	22,587	58,589	83,982	67,940	151,932
Sault Ste. Marie only.....	155,265	521,893	677,158	324,375	509,203	833,578
Traffic using United States Locks at Sault Ste. Marie only.....	10,675,828	74,575,468	85,251,296	10,928,447	82,988,582	93,917,029
Totals.....	26,835,000	104,995,580	131,830,580	48,449,728	137,200,274	185,650,002

Since 1950, the traffic through the Sault Ste. Marie canal (Canadian lock and United States locks) has fluctuated between a high of 128,489,000 tons in 1953 and a low of 70,906,000 tons in 1959; the volume in 1964 was 94,883,666 tons. Throughout the period, the dominant traffic from a tonnage aspect continued to be iron ore, which also reached its highest point in 1953 at 98,658,000 tons, dropped to 47,214,000 tons in 1961 and stood at 64,695,532 tons in 1964. In 1958, wheat replaced soft coal in second place where it has remained, tonnages increasing from 7,478,000 to 12,226,493 during the 1958-64 period; during the same years, other grains usually ranged between 35 p.c. and 60 p.c. of the wheat tonnage, although they were only 28 p.c. of that tonnage in 1961 and 30 p.c. in 1964. Soft coal carried in the 1958-64 period ranged between 6,389,000 tons in 1958 and 7,308,275 tons in 1964.

Canadian Use of the Panama Canal.—The use of the Panama Canal as a transport facility for the movement of goods from one Canadian port to another is of relatively minor importance. Of the total of 5,123,000 long tons of cargo leaving the West Coast of Canada in the year ended June 30, 1964 and passing through the Panama Canal, only 10,000 long tons were destined for Eastern Canadian ports. Similarly, of the 902,000 long tons of cargo leaving Eastern Canadian ports and passing through the Panama Canal, 13,000 long tons were destined for Western Canadian ports. The total tonnage passing through the Panama Canal and arriving in Canadian West Coast ports from any origin, Canada or elsewhere, amounted to 626,943 long tons in the year ended June 30, 1964; the total from any origin arriving at Eastern Canadian ports after having passed through the Panama Canal was 536,613 long tons.

Subsection 4.—The St. Lawrence Seaway

Events leading up to the beginning of the St. Lawrence Seaway project and the progress made during the years of its construction are covered in the 1954 to 1959 Year Books. A special article carried in the 1956 edition (pp. 821-829) gives detailed information on Great Lakes-St. Lawrence waterway traffic immediately prior to the beginning of construction on the project and another special article carried in the 1960 Year Book (pp. 851-860) covers the story of the Seaway, its new facilities and services and the movement of freight during the second year of its operation.

The St. Lawrence Seaway Authority, constituted as a Corporation by Act of Parliament in 1951 (RSC 1952, c. 242), undertook the construction (and subsequent maintenance and operation) of Canadian facilities between Montreal and Lake Erie to allow 27-foot navigation, concurrently with the construction of similar facilities in the International Rapids Section of the St. Lawrence River by the Saint Lawrence Seaway Development Corporation of the United States. The Seaway was opened to commercial traffic on Apr. 1, 1959 and officially opened on June 26, 1959. With the opening of the Seaway, certain ancillary canals were transferred to the jurisdiction of the St. Lawrence Seaway Authority for operation and maintenance purposes. These include the Lachine, a section of the Cornwall Canal, a portion of the third Welland Canal and the Canadian locks at Sault Ste. Marie. Tolls are not assessed against vessel movements on these waterways and traffic data for them are not included in this Subsection.

Tables 13 and 14 give combined traffic statistics of the St. Lawrence and Welland Canals for the year 1964. Duplicate transits are eliminated so that the figures show the actual total movement of goods through the St. Lawrence Seaway. On this basis, 4,998 ships carrying more than 21,402,000 tons of cargo moved upbound through the Seaway in 1964 and 5,038 vessels carrying 34,377,000 tons moved downbound. Ocean-going ships carried 19.1 p.c. of the total cargoes, lakera 80.8 p.c. and other craft 0.1 p.c. There is still evident an imbalance of loading, 38.9 p.c. of the gross registered tonnage of all vessels upbound being in ballast compared with only 12.8 p.c. of the vessels downbound. Of the total tonnage carried upbound in 1964, 18,111,000 tons were domestic cargo and 3,291,000 tons were foreign traffic; downbound, 27,310,000 tons were domestic freight and 7,066,000 tons were carried to and from foreign ports.

13.—Summary Statistics of St. Lawrence Seaway Traffic, 1964

(Combined traffic of the Montreal-Lake Ontario Section and the Welland Canal, with duplications eliminated)

Item	Upbound			Downbound		
	No. of Transits	Gross Tons	Cargo Tons	No. of Transits	Gross Tons	Cargo Tons
Type of Vessel						
Ocean—						
Cargo.....	1,160	6,919,838	2,855,696	1,160	6,910,772	6,620,423
Tanker.....	99	890,432	536,340	97	874,801	679,314
Laker—						
Cargo.....	2,674	20,427,599	15,835,062	2,708	20,877,907	26,182,502
Tug and barge.....	158	216,969	245,555	141	160,983	315,764
Tanker.....	535	1,513,634	1,928,220	552	1,546,316	574,658
Other craft ¹	372	141,091	1,396	380	168,687	4,212
Totals.....	4,998	30,109,563	21,402,269	5,038	30,569,466	34,376,873
Type of Cargo						
Bulk.....	1,878	12,836,774	18,476,274	3,056	22,620,242	31,113,026
General.....	612	3,096,802	1,658,824	138	569,837	374,614
Mixed.....	500	2,464,858	1,267,171	711	3,441,870	2,889,233
Passenger ²	105	8,763	—	105	8,763	—
In Ballast—						
Ocean.....	283	2,322,642	—	61	496,246	—
Laker.....	1,360	9,254,277	—	701	3,282,045	—
Other.....	260	125,447	—	266	160,463	—

¹ Includes naval vessels.
3,814.

² Upbound passengers in all types of vessel numbered 3,637 and downbound

13.—Summary Statistics of St. Lawrence Seaway Traffic, 1964—concluded

Item	Upbound			Downbound		
	No. of Transits	Gross Tons	Cargo Tons	No. of Transits	Gross Tons	Cargo Tons
Type of Traffic						
Domestic—						
Canada to Canada.....	1,499	6,719,934	4,507,575	1,879	10,726,486	11,758,714
Canada to United States.....	1,967	15,710,979	13,247,866	16	73,532	20,471
United States to Canada.....	15	65,365	15,008	1,580	11,751,363	14,913,582
United States to United States...	366	674,445	340,746	335	470,443	617,690
Foreign—						
Canada—						
Import.....	195	1,236,493	687,583	—	—	—
Export.....	—	—	—	202	1,257,275	770,246
United States—						
Import.....	956	5,702,347	2,603,491	—	—	—
Export.....	—	—	—	1,026	6,290,367	6,296,170

14.—St. Lawrence Seaway Traffic classified by Type of Cargo, 1964

(Combined traffic of the Montreal-Lake Ontario Section and the Welland Canal, with duplications eliminated)

Commodity	Cargo Tons	P.C. of Total	Commodity	Cargo Tons	P.C. of Total
Agricultural Products	19,140,348	34.3	Forest Products	387,681	0.7
Wheat.....	10,255,002	18.4	Pulpwood.....	304,159	0.6
Corn.....	3,439,035	6.2	Other forest products.....	83,522	0.1
Barley.....	1,469,833	2.6			
Soybeans.....	1,452,050	2.6	Manufactures and		
Oats.....	477,223	0.9	Miscellaneous	8,438,102	15.1
Flaxseed.....	426,550	0.9	Fuel oil.....	2,183,520	3.9
Soybean oil cake and meal.....	281,983	0.5	Iron and steel, manufactured.....	1,193,963	2.1
Beans and peas.....	265,842	0.4	Scrap iron and steel.....	555,528	1.0
Flour, wheat.....	245,716	0.4	Newsprint.....	484,896	0.9
Rye.....	153,502	0.3	Food products.....	340,611	0.6
Malt.....	80,121	0.1	Gasoline.....	315,257	0.5
Other agricultural products.....	593,491	1.0	Chemicals.....	304,391	0.5
			Lubricating oils and greases.....	284,203	0.5
Animal Products	540,364	1.0	Pig iron.....	258,198	0.5
Packing house products, edible..	164,164	0.3	Petroleum products, other.....	163,578	0.3
Hides, skins and pelts.....	96,686	0.2	Sodium products.....	153,008	0.3
Other animal products.....	279,514	0.5	Cement.....	141,932	0.3
			Sugar.....	140,638	0.3
Mineral Products	26,344,354	47.2	Syrup and molasses.....	137,819	0.3
Iron ore.....	16,863,272	30.3	Rubber, crude, natural, synthetic	124,962	0.2
Bituminous coal.....	6,658,020	12.0	Tar, pitch and creosote.....	119,804	0.2
Stone, ground or crushed.....	1,007,813	1.8	Iron and steel, nails, wire.....	110,765	0.2
Salt.....	357,529	0.6	Machinery and machines.....	87,623	0.1
Coke.....	255,676	0.5	Other manufactures and		
Clay and bentonite.....	159,102	0.3	miscellaneous.....	1,377,606	2.4
Gravel and sand.....	124,915	0.2			
Aluminum ore and concentrates.	111,202	0.2	Package Freight	928,293	1.7
Petroleum, crude.....	83,797	0.1	Package freight—domestic.....	898,473	1.6
Other mineral products.....	726,028	1.2	Package freight—foreign.....	29,820	0.1
			Totals	55,779,142	100.0

On the Montreal-Lake Ontario Section, upbound traffic increased 36.8 p.c. in 1964 compared with 1963 and downbound traffic 19.4 p.c. The former was accounted for almost entirely by the volume of iron ore shipped from St. Lawrence ports to Hamilton and Lake Erie, and the latter by overseas shipments of wheat. There were 231 more upbound transits and 263 more downbound transits in 1964 than in 1963, indicating a slight increase in the number of vessels using this portion of the Seaway. Bulk cargo comprised 94.0 p.c.

of the total traffic through the Section in 1964, the principal commodities through the St. Lawrence canals being iron ore, wheat, corn, fuel oil, bituminous coal and barley. Traffic patterns show that 30.9 p.c. of the total movement was between two Canadian ports, 42.9 p.c. moved between Canadian and United States ports and 25.9 p.c. consisted of foreign trade to and from Canada and the United States. The small remainder was traffic between two ports in the United States.

There were 8,304 transits through the Welland Canal in 1964, with a cargo volume of 18,541,000 tons upbound and 32,847,000 tons downbound; bulk cargo accounted for 94.0 p.c. of the traffic. Although many vessels pass through both the St. Lawrence and the Welland Canals on 'through' trips, there is a substantial amount of local traffic between Great Lakes ports which involves only the Welland Canal. These movements are largely iron ore, grain and coal. The Welland Canal traffic was nearly 12,080,000 cargo tons greater than that reported for the Montreal-Lake Ontario Section.

Income of the St. Lawrence Seaway Authority for 1964 amounted to \$15,050,107, comprising toll revenue of \$13,544,436 assessed for transits through the Seaway locks between Montreal and Lake Ontario together with sundry revenues (rentals, wharfage, bridge revenue, etc.) amounting to \$2,505,671. Operating and maintenance expenses amounted to \$7,895,172 and administrative expenses were \$2,847,868, making a total of \$10,743,040 excluding an amount of \$452,063 for non-toll canals. Comparable figures for 1963 are shown in Section 2, p. 807.

Pleasure craft locked through the Montreal-Lake Ontario Section canals numbered 343 upbound and 354 downbound in 1964, and those locked through the Welland Canal numbered 104 upbound and 128 downbound.

Subsection 5.—Marine Services of the Federal Government

The services covered in this Subsection deal with the Canadian Coast Guard and aids to navigation, including the maintenance of the St. Lawrence River Ship Channel, steamship inspection and pilotage service.

Canadian Coast Guard.—The Canadian Coast Guard, known by that name only since January 1962, has played a vital part in Canada's maritime economic and industrial development since Confederation. At that time several previously established government marine organizations were brought together as a single marine service, founding the fleet that became the responsibility of the Department of Transport when it was established in 1936.

From a small beginning, the fleet has expanded into an organization consisting of more than 200 vessels of all types, of which nearly 50 are of a larger size. Of these, 31 measure more than 1,000 tons gross. They include 10 fully strengthened icebreakers and eight lighthouse supply-and-buoy ships with icebreaking capabilities. These vessels comprise in numbers the world's second largest icebreaking force. The greater part of the fleet's expansion has occurred within the past few years to meet a new and fast-growing requirement for icebreaker support of shipping activities in the Canadian Arctic during the summer and for commercial shipping in the Gulf of St. Lawrence in the winter.

The Department's concern with marine search-and-rescue activities has also increased, not only in the field of commercial shipping but also in connection with the mushrooming public interest in pleasure boating with its attendant safety problems.

The duties of the Canadian Coast Guard are civilian in nature and no armaments are carried on the ships. It maintains and supplies shore-based and floating aids to navigation in Canadian waters, including the Atlantic and Pacific coastal areas, the St. Lawrence River and Great Lakes, the channels of both the eastern and western Arctic, Hudson Bay, the Mackenzie River system and other inland waters. The territory covered is vast and the duties involved are extensive.

Since its beginning, the fleet has carried out icebreaking as one of its important undertakings. In its earliest years, such work was done mainly to aid shipping in eastern port areas and in the St. Lawrence for whatever winter period was allowed by weather conditions and the limitations of ships of that area. Icebreaking has also been carried out through the years at Montreal to prevent floods caused by ice jams in the river. When the development of the sea route from Churchill, Man., to Europe became a factor in the country's maritime economy, icebreaker assistance was extended to commercial shipping using that route. Since 1954, as a result of the opening up of the Canadian Arctic, the Department has handled all icebreaking requirements in these waters, extending to within a few hundred miles of the North Pole.

Arctic operations necessitate ice reconnaissance services, which are carried out by fixed wing aircraft flying out of such ports as Churchill, Man., and Frobisher Bay and Resolute Bay in the High Arctic. These flights are under the direction of the Department's Meteorological Branch and provide information on ice conditions in the sea lanes in all areas where the convoys operate. Helicopters, based aboard the icebreakers, are used for close-range reconnaissance. They carry trained observers provided by the Meteorological Branch and their ability to spot leads through the ice, which cannot be seen from the ship, has resulted in tremendous savings in time for the convoys. The helicopters are also very useful for ship-to-shore personnel movements and for carrying light freight.

As an indication of the growth of Arctic re-supply operations handled by the Canadian Coast Guard, the cargo handled, which was approximately 8,000 tons in 1954, had increased to almost 100,000 tons in 1964.

A Canadian Coast Guard Officer Training College, established in 1965 by the Department of Transport at Sydney, N.S., will provide a four-year course for students who will graduate with certificates as either Marine Engineer, First Class, or Master Mariner. The first class comprised forty cadets from all across Canada.

Aids to Navigation.—The Canadian system of aids to navigation is similar to that of other North American countries. Such aids maintained by the Department of Transport for Canadian and contiguous waters consist of buoys, lightships, lighthouses, day beacons, radio beacons and two electronic networks operating on the hyperbolic principle—Loran and Decca. The numbers of danger signals maintained during the years ended Mar. 31, 1964 and 1965 were:—

<u>Type of Signal</u>	<u>1963-64</u>	<u>1964-65</u>	<u>Type of Signal</u>	<u>1963-64</u>	<u>1964-65</u>
	No.	No.		No.	No.
Lights	3,374	3,447	Hand fog horns and bells	60	81
Lightships	2	2	Lighted and combination lighted whistling and bell buoys	1,598	1,582
Light-keepers	893	915	Unlighted bell and whistling buoys ..	57	43
Fog whistles and sirens	51	54	Explosive signals	1	—
Diaphones and tyfons	268	271	Unlighted beacons and buoys	12,614	12,786
Mechanical bells and gongs ..	18	10			

All aids incorporating light or sound devices are listed in the Department of Transport annual publication *List of Lights and Fog Signals*. Information on the radio beacons and on Loran and Decca is published in *Radio Aids to Marine Navigation*.

Navigable waters have been improved greatly by dredging in channels and harbours, by the removal of obstructions, and by the building of remedial works to maintain or control water levels. Incidental to these developments of navigable waters are works to guard shorelines and prevent erosion, and for the control of roads and bridges that cross navigable channels. Icebreaking operations are continuous throughout the winter.

St. Lawrence Ship Channel.—This channel extends from about 40 miles below Quebec City to the foot of the Lachine Canal at Montreal, a distance of 200 miles. About 130 miles of this distance is dredged channel.

Above Quebec the channel has a limiting depth of 35 feet at extreme low water and a minimum width of 550 feet, with additional width up to 1,500 feet at all curves and difficult points, and additional anchorage and turning areas. Widening of the channel to a minimum width of 800 feet, commenced in 1952, is about 65 p.c. completed. This section comprises about 115 miles of dredged channel. Below Quebec the limiting depth of dredged channel, about 15 miles in length, is 30 feet at low tide, with a width of 1,000 feet. An average tidal range of 15 feet in this area provides ample depth for any vessel using the St. Lawrence route. Above Quebec, maintenance requirements as a result of silting in this dredged channel are relatively minor but below the city silting is more pronounced because of tidal action.

The ship channel is well defined by buoys and the centre marked by range lights, permitting uninterrupted day and night navigation throughout the open season from about mid-April to early December. The movements of all shipping, weather and ice conditions and obstructions to traffic throughout the St. Lawrence waterway from Fame Point, Que., to Kingston, Ont., are recorded and made available to all concerned through a series of reporting stations known as the Marine Reporting Service.

15.—Seasons of Open Navigation on the St. Lawrence Ship Channel, 1955-64

NOTE.—Figures from 1882 are given in the corresponding table of previous Year Books beginning with the 1934-35 edition.

Year	Channel Open, Quebec to Montreal ¹	First Arrival from Sea, Montreal Harbour	Last Departure for Sea, Montreal Harbour	Year	Channel Open, Quebec to Montreal ¹	First Arrival from Sea, Montreal Harbour	Last Departure for Sea, Montreal Harbour
1955.....	Apr. 17	Apr. 5	Dec. 16	1960.....	Apr. 14	Mar. 21	Dec. 16
1956.....	" 13	" 2	" 17	1961.....	" 11	" 27	" 22
1957.....	" 8	" 4	" 18	1962.....	" 15	" 12	" 19
1958.....	" 6	Mar. 30	" 23	1963.....	" 10	" 12	" 24
1959.....	" 13	Apr. 1	" 20	1964.....	Mar. 28	Jan. 4	" 24

¹ "Channel Open" means the route can be navigated although there may be floating ice in the river.

Steamship Inspection.—The Steamship Inspection Service was established by authority of the Canada Shipping Act. Its functions include the formulation and subsequent enforcement of regulations concerned with the approval of design of hulls, machinery and equipment of ships; inspection during construction; periodic inspection and the issue of inspection certificates; the assignment of load lines; the conditions under which dangerous goods may be carried in ships; the protection against accident of workers employed in loading and unloading ships; the prevention from pollution of Canadian territorial waters by oil from ships; control of pollution of the atmosphere by smoke emitted by ships; control of the powering, equipment and load limits of small vessels; and the certification of marine engineers. The Board also prepares correspondence courses in marine engineering for use in Marine Engineering Schools now controlled by the Department of Labour.

The Chairman and the Board of Steamship Inspection are located at Ottawa and field offices are maintained in the principal ocean and inland ports. A total of 1,762 vessels of Canadian ownership or registry, which included 466 passenger ships, and 42 vessels registered or owned elsewhere were inspected during the year ended Mar. 31, 1965.

Pilotage.—Pilotage service functions under the provisions of Part VI and Part VIA of the Canada Shipping Act. Wherever a pilotage district has been created by the Governor in Council, qualified pilots are licensed by the pilotage authority of the district. There are in Canada 22 pilotage districts, in nine of which the Minister of Transport is the pilotage authority (see Table 16); in each of the other districts the authority is a local body appointed by the Governor in Council. There are also three districts that are administered jointly by Canada and the United States.

16.—Pilotage Service, by Pilotage District, 1963 and 1964

District	1963		1964	
	Pilotage Trips	Net Registered Tonnage	Pilotage Trips	Net Registered Tonnage
	No.		No.	
Bras d'Or Lakes, N.S.....	292	1,138,026	336	624,472
Sydney, N.S.....	1,771	5,989,482	1,716	6,214,466
Halifax, N.S.....	3,518	14,689,733	3,760	15,965,172
Saint John, N.B.....	1,411	5,955,316	1,417	5,925,320
Quebec, Que.....	8,455	35,838,124	8,191	41,726,354
Montreal, Que.....	10,071	41,645,979	10,321	42,735,994
Cornwall, Ont.....	2,388	7,844,392	2,724	9,924,893
Churchill, Man.....	135	641,140	118	705,515
British Columbia.....	8,569	34,657,721	9,058	37,618,095
Totals.....	35,610	148,399,913	37,641	161,440,281

In addition, there are known to be five districts in Newfoundland under the local pilotage authority. These districts continued to be administered under Newfoundland statutes after union with Canada (Mar. 31, 1949). Part VI of the Canada Shipping Act with respect to pilotage became effective in Newfoundland on Jan. 1, 1965.

Section 2.—Financial Statistics of Waterways

The principal statistics available on the cost of facilities for water-borne traffic consist of the record of public expenditure on waterways. Such expenditure may be classified as capital expenditure, or investment and expenditure for maintenance and operation. Revenue from operation is also recorded. The major part of the capital expenditure for the permanent improvement of waterways is provided by the Federal Government. Capital expenditure by municipalities and private capital expenditure are confined almost entirely to terminal or dockage facilities. On the other hand, most of the investment in shipping has come from private sources. No figures are available regarding private investment in shipping except those appearing in the reports of the operating companies that cover only a portion of the field. There are no statistics showing the revenue of ship operators from passenger and freight traffic.

Capital Expenditure.—The only figures available of federal capital expenditure on Canadian waterways are those contained in the *Public Accounts* and the annual reports of the Departments of Transport, Public Works and Finance and in the annual report of the St. Lawrence Seaway Authority. It must be realized that such expenditure cannot be regarded as an accurate indication of the present worth of the undertakings represented. The cost of building canals and other waterways and permanent works to facilitate water transportation in Canada is represented in such reports at their original book values, no deductions having been made from the cumulative totals for depreciation from year to year or for abandonment of works that have been superseded, such as, for example, the first Welland canals and the now flooded St. Lawrence River canals. To this extent, such figures are an over-statement of the present value of the works in use. The figures are further limited by the fact that they do not include the cost of maintenance and improvements or the operation of these works, such charges having been made to the consolidated deficit account as annual expenditure and not to capital account. Thus, such capital expenditure on waterways is not included in this publication, with the exception of that made by the National Harbours Board on facilities under its jurisdiction. Capital values of the fixed assets administered by the Board are shown as at Dec. 31, 1963 and 1964

in Table 17. These figures include all buildings, machinery and durable plant improvements and have been subject to deductions for depreciation and the scrapping or abandonment of plant, and therefore represent a fair approximation of the present value of the properties.

17.—Capital Values of Fixed Assets Administered by the National Harbours Board, as at Dec. 31, 1963 and 1964

NOTE.—Compiled from the annual reports of the National Harbours Board.

Item	1963	1964	Item	1963	1964
	\$	\$		\$	\$
Harbour dredging.....	22,862,747	22,405,671	Harbour buildings, service plants and equipment.....	10,381,288	10,753,300
Land and land improvements..	17,840,204	21,117,632	Floating and shore equipment	5,203,512	5,159,890
Wharves and piers.....	146,269,413	147,388,072	Jacques Cartier Bridge.....	22,279,493	22,279,302
Permanent sheds.....	39,578,174	42,733,415	Champlain Bridge.....	34,616,821	36,638,012
Railway systems.....	6,654,763	6,953,024	Works under construction....	4,422,326	7,938,463
Grain elevator systems.....	86,793,666	87,298,261			
Cold storage systems.....	6,813,943	6,857,178	Totals	403,716,355	417,522,220

The total amount advanced by the Federal Government to the National Harbours Board for capital expenditure during 1964 was \$3,619,252, distributed as follows: Quebec, Que., \$1,497,569; Churchill, Man., \$100,450; and Champlain Bridge (Montreal), \$2,021,233. The total for 1963 was \$7,325,025, distributed as follows: Saint John, N.B., \$98,939; Montreal, Que., \$4,481,043; and Champlain Bridge (Montreal), \$2,745,043.

Waterways Expenditure and Revenue.—Expenditure under this heading (Tables 18 to 20) is mainly for the operation and maintenance of various facilities for water transport but, unfortunately, the line between operation and maintenance expenditure is not as finely drawn as is desirable. Revenue in connection with waterways of the Department of Transport, the Department of Public Works and the St. Lawrence Seaway Authority is shown in Table 21.

To facilitate water transportation, the Federal Government expends annually, in addition to the recurrent expenditure shown here, a considerable amount to cover deficits of the National Harbours Board, and for mail subsidies and steamship subventions as shown in Table 23. Operating revenue and expenditure of facilities administered by the National Harbours Board are shown separately in Table 22.

18.—Department of Transport Expenditures on Marine Service, Years Ended Mar. 31, 1963 and 1964

Service	1963	1964
	\$	\$
Administration, including agencies.....	1,335,202	1,186,059
Marine Works Branch—		
Aids to Navigation Division—		
Administration, operation and maintenance.....	6,278,240	6,978,572
Construction.....	4,298,851	5,648,701
River St. Lawrence Ship Channel Division—		
Administration, operation and maintenance.....	783,288	1,101,607
Canals Division—		
Administration, operation and maintenance.....	2,372,295	2,544,425
Construction.....	1,228,935	1,803,092
Write-off of cost of land acquired for Cornwall Navigation System.....	1,710,567	—

**18.—Department of Transport Expenditures on Marine Service, Years Ended Mar. 31,
1963 and 1964—concluded**

Service	1963	1964
	\$	\$
Marine Regulations Branch— Steamship Inspection Division.....	1,236,428	1,180,505
Nautical and Pilotage Division— Nautical Services.....	496,319	424,407
Pilotage Services— Administration, operation and maintenance.....	1,522,521	1,516,016
Pensions to former pilots.....	1,200	1,200
Marine reporting service.....	127,997	124,841
Payment to Newfoundland re Pilotage Commission.....	—	8,451
Construction.....	587,931	193,423
Marine Operations Branch— Administration, operation and maintenance.....	21,525,216	23,250,529
St. Lawrence Seaway Authority— Operating deficit and capital requirements of canals and works entrusted to the St. Lawrence Seaway Authority.....	2,794,346	2,883,620
Totals.....	46,299,336	48,845,448

**19.—Department of Public Works Expenditure on Waterways (Harbours, Rivers, Roads
and Bridges), Years Ended Mar. 31, 1963 and 1964**

NOTE.—Compiled from the annual reports of the Department concerned by the Comptroller of the Treasury, Department of Finance. Excludes expenditures on harbours administered by the National Harbours Board as shown in Table 22.

Year and Province or Territory	Dredging ¹	Con- struction	Improve- ments and Repairs	Staff and Sundries	Total
	\$	\$	\$	\$	\$
1963					
Newfoundland.....	673,534	5,127,548	547,414	118,614	6,467,110
Prince Edward Island.....	420,577	951,741	170,665	148,111	1,691,094
Nova Scotia.....	628,585	1,792,138	376,124	5,489	2,802,336
New Brunswick.....	1,032,491	728,778	160,137	61,052	1,982,458
Quebec.....	608,267	4,449,535	840,644	316,928	6,215,374
Ontario.....	395,172	6,530,451	338,727	88,257	7,352,607
Manitoba.....	238,346	66,710	69,956	30,123	405,135
Saskatchewan.....	—	570	72	—	642
Alberta.....	263,100	5,276	28,083	75,050	371,509
British Columbia.....	1,091,501	1,240,194	539,051	269,741	3,140,487
Yukon and Northwest Territories.....	—	276,170	24,738	47,327	348,235
Canada, 1963.....	5,351,573	21,169,111	3,095,611	1,160,692	30,776,987
1964					
Newfoundland.....	531,156	4,030,792	579,181	270,660	5,411,789
Prince Edward Island.....	444,071	361,829	237,655	9,554	1,053,109
Nova Scotia.....	440,450	1,564,427	423,074	429	2,428,380
New Brunswick.....	1,151,948	1,024,046	236,708	8,874	2,421,576
Quebec.....	384,715	3,176,395	902,937	335,980	4,800,027
Ontario.....	485,342	2,520,184	432,330	49,371	3,487,227
Manitoba.....	250,712	747	64,316	50,670	366,445
Saskatchewan.....	—	66,494	5,285	—	71,779
Alberta.....	280,799	7,397	12,485	29,962	330,643
British Columbia.....	1,309,261	1,307,109	390,343	227,038	3,233,751
Yukon and Northwest Territories.....	—	48,889	50,189	—	99,078
Canada, 1964.....	5,278,454	14,108,309	3,334,503	982,538	23,703,804

¹ Includes expenditures for dredging plants.

20.—St. Lawrence Seaway Authority Expenditures, 1963 and 1964

Item	1963	1964
	\$	\$
Administration—		
Headquarters.....	1,207,123	1,273,556
Regional.....	699,966	741,209
Engineering.....	576,759	833,103
Operation and Maintenance—		
Salaries and wages.....	3,837,642	4,272,947
Employee benefits.....	412,524	419,674
Maintenance materials and services.....	1,402,801	2,262,846
Grants in lieu of municipal taxes.....	382,767	366,666
Other operation and maintenance expenses.....	195,479	573,039
Totals.....	8,715,061	10,743,040

21.—Federal Government Revenue in connection with Waterways, Years Ended Mar. 31, 1963 and 1964

NOTE.—Compiled from annual reports of the Department of Transport, the *Public Accounts* and the annual reports of the St. Lawrence Seaway Authority.

Department and Item	1963	1964	Department and Item	1963	1964
	\$	\$		\$	\$
Department of Transport			Department of Public Works		
Marine Services.....	7,040,948	6,538,235	Earnings of Dry Docks.....	400,316	463,816
Canals.....	402,852	384,086	Champlain Dock, Lauzon.....	236,824	258,956
Fines and forfeitures.....	2,397	2,128	Lorne Dock, Lauzon.....	50,144	67,905
Steamship inspection.....	262,179	242,554	Esquimalt new dock.....	109,983	134,360
Wharf revenue.....	765,893	922,446	Selkirk repair slip.....	3,365	2,595
Harbour dues.....	231,749	332,104			
Measuring surveyor's fees.....	1,482	1,396	Works and Plants Leased.....	33,513	46,344
Examinations—masters' and mates' fees.....	12,712	13,936	Kingston dry dock.....	12,100	12,100
Pilots' licence fees (pilotage).....	440	380	Ferry privileges.....	281	476
Pilotage fees.....	580,828	594,231	Dredges and plants.....	21,132	33,768
Pilot boat fees.....	255,248	253,400			
Shipping fees.....	13,005	12,124	Rents from water lots, etc.....	75,120	73,281
Marine steamer earnings.....	3,785,659	3,469,766	Refunds of expenditure reported in previous years.....	621,530	215,210
Rentals—water lots and light-house sites.....	37,276	52,076	Sundry receipts, test borings, etc.....	1,572	4,167
River St. Lawrence Ship Channel Service.....	25	—			
Sale of land, buildings, etc.....	7,653	26,994	Totals, Department of Public Works.....	1,132,051	802,818
Merchant seamen's identity certificates.....	857	686			
Miscellaneous.....	103,706	114,843	St. Lawrence Seaway Authority		
Refunds, previous year's expenditures.....	513,054	39,612	Tolls assessed.....	10,730,418	13,544,436
Port warden fees.....	63,933	75,473	Rentals.....	453,947	476,550
Board of Transport Commissioners.....	1,914	2,271	Wharfage.....	136,268	248,052
			Miscellaneous.....	724,591	781,069
Totals, Department of Transport.....	7,042,862	6,540,506	Totals, St. Lawrence Seaway Authority.....	12,045,224	15,050,107

**22.—Operating Revenue and Expenditure of Harbours, Elevators and Bridges
under the National Harbours Board, 1963 and 1964**

Harbour and Year	Operating Revenue	Operating Expend- iture	Net Operating Income	Harbour and Year	Operating Revenue	Operating Expend- iture	Net Operating Income
	\$	\$	\$		\$	\$	\$
Halifax—				Jacques Cartier Bridge— (Montreal)—			
1963.....	2,313,292	1,908,181	405,111	1963.....	151,811	254,943	-103,132
1964.....	2,608,074	2,153,383	454,691	1964.....	158,974	294,129	-135,155
Saint John—				Champlain Bridge (Montreal)—			
1963.....	1,033,725	991,344	42,381	1963.....	448,326	426,351	21,975
1964.....	1,066,583	910,410	156,173	1964.....	624,879	407,889	216,990
Chicoutimi—				Prescott Elevator—			
1963.....	136,039	37,193	98,846	1963.....	924,532	487,462	437,070
1964.....	154,353	34,450	119,903	1964.....	779,973	429,017	350,956
Quebec—				Port Colborne Elevator—			
1963.....	2,983,906	2,032,054	951,852	1963.....	400,264	278,032	122,232
1964.....	3,452,081	2,278,162	1,173,919	1964.....	405,026	288,617	116,209
Trois-Rivières—				Churchill—			
1963.....	768,894	131,119	637,775	1963.....	1,356,568	1,258,578	97,990
1964.....	841,544	132,041	709,503	1964.....	1,401,910	1,111,659	290,251
Montreal—				Vancouver—			
1963.....	12,567,151	8,299,401	4,267,750	1963.....	4,803,884	2,597,350	2,206,534
1964.....	13,617,423	8,510,669	5,106,754	1964.....	5,775,124	3,404,860	2,370,264

Shipping Subsidies.—Table 23 shows the net amount of steamship subventions paid in connection with contracts made for the maintenance of essential coastal and inland water shipping services. The payment of these subventions is administered by the Canadian Maritime Commission under statutory authority.

23.—Steamship Subventions, Years Ended Mar. 31, 1964 and 1965

Services	1964	1965
	\$	\$
Western Local Services—		
Gold River and Zeballos, B.C.....	12,000	24,000
Vancouver and Northern British Columbia ports, B.C.....	300,000	300,000
Vancouver and West Coast of Vancouver Island, B.C.....	88,000	88,000
Eastern Local Services—		
Baddeck and Iona, N.S.....	13,125	—
Dalhousie, N.B., and Miguasha, Que.....	37,500	37,500
Grand Manan and the Mainland, N.B.....	112,700	112,700
Halifax, N.S., and St. John's, Nfld.....	—	116,274
Île aux Coudres and Les Éboulements, Que.....	33,000	33,000
Île aux Grues and Montmagny, Que. (summer).....	6,500	6,500
Île aux Grues and Montmagny, Que. (winter).....	1,700	1,700
Îles de la Madeleine, Que., Cheticamp and Halifax, N.S.....	35,000	32,566
Îles de la Madeleine and Montreal, Que.....	100,000	84,566
Matane and Godbout, Que.....	—	—
Mulgrave and Canso, N.S.....	52,400	52,400
Mulgrave, Queensport and Isle Madame, N.S.....	31,250	31,250
Murray Bay or Rimouski and North Shore of St. Lawrence River, Que.....	35,000	—
Owen Sound and ports on Manitoulin Island and Georgian Bay, Ont.....	100,000	157,000
Pelee Island and the Mainland, Ont.....	76,540	78,695
Pictou, N.S., Charlottetown, Souris, P.E.I., and Îles de la Madeleine, Que.....	298,000	294,000
Pointe au Père and Baie Comeau, Que.....	1,463,650	—
Portugal Cove and Bell Island, Nfld.....	223,285	275,869
Prince Edward Island and Newfoundland.....	84,500	84,500
Prince Edward Island and North Shore of St. Lawrence River, Que.....	42,500	42,500

¹ Recaptured.

23.—Steamship Subventions, Years Ended Mar. 31, 1964 and 1965—concluded

Services	1964	1965
	\$	\$
Eastern Local Services—concluded		
Prince Edward Island and Nova Scotia.....	620,998	748,882
Quebec, Natashquan and Blanc Sablon, Que.....	430,000	430,000
Rimouski, Matane and North Shore of St. Lawrence River, Que.....	229,000	—
Rimouski and North Shore ports to Blanc Sablon, Que.....	—	290,000
Rivière du Loup and St. Siméon, Que.....	21,000	21,000
Ste. Anne des Monts and Sept Îles, Que.....	—	50,000
Saint John, N.B., Westport, Tiverton, Freeport and Yarmouth, N.S.....	38,000	38,000
Saint John and White Head Island, N.B.....	—	3,500
St. Lawrence River and Gaspé ports to Chandler, Que.....	34,042	43,000
Sorel and Île St. Ignace, Que.....	43,000	43,000
Sydney and Bay St. Lawrence, N.S.....	42,500	42,500
Trois Pistoles and Les Escoumins, Que.....	5,000	5,000
Twillingate and New World Island, Nfld.....	—	10,875
Yarmouth, N.S., and Rockland, Maine, U.S.A.....	6,600	8,235
Newfoundland Coastal Steamship Services.....	4,752,104	4,647,287
Totals.....	9,368,894	8,234,299

PART V.—CIVIL AIR TRANSPORT

Administration.—Civil aviation in Canada is under the jurisdiction of the Federal Government and is administered under the authority of the Aeronautics Act, 1919 and amendments thereto. The Aeronautics Act is in three parts. Broadly speaking, Part I deals with the technical side of civil aviation comprising matters of registration of aircraft, licensing of airmen, the establishment and maintenance of airports and facilities for air navigation, air traffic control, accident investigation and the safe operation of aircraft. This Part of the Act is administered by the Director of Civil Aviation under the supervision of the Assistant Deputy Minister, Air Services, Department of Transport. Part II of the Act deals with the social and economic aspects of commercial air services and assigns to the Air Transport Board certain regulatory functions of commercial air services (see pp. 758-759). Part III deals with matters of government internal administration in connection with the Act.

International Air Agreements.—The position of Canada in the field of aviation as well as its geographical location makes co-operation with other nations of the world engaged in international civil aviation imperative. Canada therefore took a major part in the original discussions that led to the establishment of the International Civil Aviation Organization (ICAO) which has headquarters at Montreal, Que. A special article on The International Civil Aviation Organization and Canada's Participation Therein appears in the 1952-53 Year Book, pp. 820-827. At present Canada has air agreements with 21 other countries.

Federal Civil Aviation Policy.—The intent of Federal Government concern in civil aviation is to provide an efficient and stable service for the Canadian public and the best possible economic framework for the major and regional carriers. In formulating its aviation policy in 1964, three principles were accepted by the Government as basic. The first related to the international field and stated that air services provided by Canadian airlines should serve the Canadian interest as a whole; that these services should not be competitive or conflicting but should represent a single integrated plan which could be achieved by amalgamation, by partnership or by a clear division of fields of operations. The two major airlines agreed that the most effective way to carry out this policy would be by a clear division of their fields of operations so that outside Canada neither airline

would serve any point served by the other. As a result, it has now been decided that Canadian Pacific Airlines Limited will serve the whole Pacific area, the whole Continent of Asia, Australia and New Zealand, southern and southeastern Europe and Latin America, and that Air Canada will serve Britain, western, northern and eastern Europe, and the Caribbean. The only exception to this clear-cut division is that CPA will continue to serve the Netherlands. This division accounts for the whole of the world except Africa and the United States; decisions concerning the former depend on the contemplation of service to that area and those concerning the latter on the completion of new bilateral agreements. Co-operation will be maintained between the two carriers in sales and agency relationships, each carrier representing the other outside its own area, so that passengers will be encouraged to travel to their destinations by Canadian airlines. Other measures of co-operation, including joint advice to the Government on air negotiations and joint servicing and support arrangements, will also be maintained.

The second principle concerned the domestic mainline services and stated that, although competition was not to be rejected, development of competition should not compromise or seriously injure the economic viability of Air Canada's domestic operations which represent the essential framework of its network of domestic services, and in the event that competition continues, opportunity should be ensured for growth to both lines above this basic minimum. In 1965 a special aviation consultant was appointed to advise whether the growth of domestic mainline service will now permit some further degree of competition and to recommend the procedure for working out such extensions of service.

The third principle concerned the role of regional air carriers providing scheduled service and their relationship with the mainline carriers. Recommendations are being prepared by the two major airlines and the larger regional carriers as to specific steps that might be taken by the carriers themselves or the Government to improve the position of the regional air carriers and give them a reasonable chance to operate successfully without subsidization.

Thus, in the international field, the joint approach to the provision of world-wide service by the two major Canadian carriers should strengthen their position in a very competitive field and should provide a better over-all service to the travelling public. In the domestic field, a degree of competition will remain to provide the public with the advantages that can result from a competitive atmosphere but excesses of competition, which could be ruinous to the operators and unsatisfactory to the public, will be avoided.

Section 1.—Air Services

Two major airlines, Air Canada and Canadian Pacific Airlines Limited, form the nucleus of Canada's freight and passenger air service. Current operations of these airlines are discussed briefly below, followed by short outlines of the services provided by independent airlines and a list of Commonwealth and foreign air carriers licensed to operate services into Canada.

Broadly, air transport services in Canada may be grouped into two classes—Scheduled Services and Non-scheduled Services. Services in the first group are operated by air carriers that offer public transportation of persons, mails and/or goods by aircraft, serving designated points in accordance with a service schedule and at a toll per unit. The second group includes the following:—

- (1) Regular Specific Point Air Services—operated by air carriers who offer public transportation of persons, mails and/or goods by aircraft serving designated points on a route pattern and with some degree of regularity, at a toll per unit.
- (2) Irregular Specific Point Air Services—operated by air carriers who offer public transportation of persons, mails and/or goods by aircraft from a designated base, serving a defined area or a specific point or points, at a toll per unit.
- (3) Charter Air Services—operated by air carriers who offer public transportation of persons and/or goods by aircraft from a designated base, at a toll per mile or per hour for the charter of the entire aircraft, or at such other tolls as may be permitted by the Air Transport Board.

- (4) Contract Air Services—operated by air carriers who do not offer public transportation but who transport persons and/or goods solely in accordance with one or more specific contracts.
- (5) Flying Clubs—operated by air carriers incorporated as non-profit organizations for the purpose of furnishing flying training and recreational flying to club members.
- (6) Specialty Services—operated by air carriers for purposes not provided for by any other class, such as flying training, recreational flying, aerial photography and survey, aerial pest control, aerial advertising, aerial patrol and inspection, etc.

Air Canada.—In 1964, its 27th year of operation, Air Canada carried a record 4,093,754 passengers on scheduled flights and 95,595 on charter flights, a total of 4,189,349. Compared with 1963, scheduled transatlantic passenger traffic showed a marked increase of 23 p.c., attributable mainly to the new low fares introduced on Apr. 1, 1964 and to attractive frequencies and schedules. But despite these low rates, charter traffic also increased substantially and accounted for nearly one third of the transatlantic passenger traffic. North American scheduled passenger traffic as a whole increased by 6 p.c. and southern scheduled traffic by 5 p.c. Operating statistics for the years 1955-64 are given in Table 1.

At the end of 1964, Air Canada was operating over 39,840 route miles linking Canada, the United States, the British Isles, Continental Europe and the Caribbean. Its fleet consisted of 78 turbine-powered aircraft—16 DC-8's, 23 turbo-prop Vickers Vikings and 39 turbo-prop Vickers Viscounts. Orders were placed for two additional DC-9 twin-jets during the year, bringing to eight the number of these aircraft scheduled for delivery in 1966. Planning for the integration of the DC-9 into the Air Canada fleet in 1966 was well advanced by the end of the year; it is expected that the new aircraft will be introduced on domestic services, replacing and augmenting existing Viscount and Vanguard service but, as additional aircraft are delivered, DC-9 service will be extended to other areas such as Florida and the inner Caribbean. At the year-end, Air Canada employees numbered 11,670.

1.—Operating Statistics of Air Canada, 1955-64

Year	Traffic				Operating Revenue			Operating Expend- iture	Operating Surplus
	Revenue Passenger ¹		Revenue Com- modity ²	Mail	Passenger	Freight and Mail	Totals ³		
	No.	'000 passenger- miles	'000 ton- miles	'000 ton- miles	\$'000	\$'000	\$'000	\$'000	\$'000
1955.....	1,682,195	969,392	12,175	7,704	61,105	14,314	77,428	76,771	+657
1956.....	2,072,912	1,191,784	14,476	8,613	74,479	15,639	91,306	89,197	+2,109
1957.....	2,392,713	1,385,777	15,478	9,855	86,524	16,055	104,996	96,680	+8,315
1958.....	2,785,523	1,625,689	15,395	10,386	101,553	17,407	120,555	108,130	+12,425
1959.....	3,209,197	1,828,902	17,753	10,905	114,359	18,293	134,679	120,120	+14,559
1960.....	3,440,303	2,050,600	20,868	11,593	127,596	19,307	148,987	134,263	+14,724
1961.....	3,712,068	2,481,122	24,091	11,934	143,301	19,466	165,436	143,370	+22,066
1962.....	3,865,408	2,659,578	29,827	12,862	158,792	21,914	183,473	162,821	+30,652
1963.....	3,966,547	2,887,239	35,781	13,859	167,653	24,088	199,390	161,816	+37,574
1964.....	4,189,349	3,150,956	45,590	15,731	177,091	27,684	213,909	175,752	+38,157

¹ Includes non-scheduled service.

² Includes excess baggage and express.

³ Includes other revenue.

Canadian Pacific Airlines Limited.—Canadian Pacific Airlines operates a 45,287-mile route pattern linking five continents as well as major cities in Canada. This pattern comprises 6,900 domestic miles, including 2,450 miles on Canadian mainline service.

In 1964, CPA carried 541,014 passengers, a greater number than in any other year since the company's inception in 1942. Revenue passenger-miles on international routes in 1964 showed a substantial advance to 983,066,481 over a 1963 figure of 909,407,523.

CPA's international routes, 37,600 miles in extent, operate from Vancouver to Honolulu, Fiji, New Zealand and Australia on the South Pacific Service; to Japan and Hong Kong via the Great Circle Route across the North Pacific; from Vancouver via Calgary and

Edmonton to Amsterdam on the Polar Route; and across the Atlantic from Toronto and Montreal to Portugal, Spain and Italy. A South American network serves Mexico City, Lima, Santiago and Buenos Aires from Windsor, Toronto and Montreal in Eastern Canada and Vancouver and Calgary in the West. In Canada, CPA operates a mainland transcontinental service linking Vancouver, Winnipeg, Toronto and Montreal and a domestic network of north-south routes in British Columbia, Alberta and the Yukon Territory.

CPA's fleet consists of 18 aircraft, including five Douglas Super DC-8's, four Bristol Britannias, five Douglas DC-6B's and three Douglas DC-3's. Two additional Super DC-8's are on order, one for delivery in late 1965 and the other in 1966. The international routes are served by the Super DC-8's and Bristol Britannias and the domestic routes are served by DC-6B and DC-3 aircraft. The transcontinental route is served by Super DC-8's.

Independent Airlines.—In addition to the two major Canadian air carriers—Air Canada and Canadian Pacific Airlines Limited—there are four domestic air carriers licensed to operate scheduled commercial air services in Canada, namely, Eastern Provincial Airways (1963) Ltd., Gander, Nfld.; Quebecair, Rimouski, Que.; TransAir Limited, Winnipeg, Man.; and Pacific Western Airlines Ltd., Vancouver, B.C.

Licensed Canadian air carriers operating in Canada as at Mar. 31, 1965 held valid operating certificates covering 40 scheduled, 161 flying training, and 1,597 other non-scheduled and specialty services. These non-scheduled services, in addition to providing effective access to sections of Canada that are inaccessible by other means of transportation, act as feeder lines to the scheduled airlines. They also include such specialty services as recreational flying, aerial photography and surveying, aerial pest control, aerial advertising, aerial patrol and inspection.

Eastern Provincial Airways (1963) Ltd.—This company operates throughout the Atlantic Provinces, eastern Quebec, Labrador and Greenland. It serves Charlottetown and Summerside in Prince Edward Island; Moncton and Dalhousie in New Brunswick; New Glasgow and Halifax in Nova Scotia; Deer Lake—Corner Brook, Gander and St. John's in Newfoundland; Goose Bay and Saglek in Labrador; and Sept Îles and Magdalen Islands in Quebec.

The Airways fleet consists of three Handley-Page Dart Heralds, one DC-4, three DC-3's, two PBV Cansos, five DH Beavers and five DH Otters. The Company carries on an extensive air freight service throughout the above areas and conducts many specialty services such as mineral exploration, the transporting of hunting and fishing parties, ambulance service and forestry, seal and ice patrol services.

Quebecair.—Quebecair, a privately owned commercial airline with headquarters at Rimouski, serves various points in the Province of Quebec including Montreal, Quebec, Saguenay, Rivière du Loup, Rimouski, Mont Joli, Sept Îles, Wabush, Schefferville, Gagnon, Baie Comeau, Forestville, Manicouagan and Murray Bay. No point served is more than five flying hours from Montreal.

The company began operations in 1946 under the name of Rimouski Aviation Syndicate and was incorporated under the name of Rimouski Airlines in 1947. At the beginning of 1954, the newly created Rimouski Airlines bought out Gulf Aviation and formed Quebecair. The number of passengers flown in 1964 was 107,000 and the amount of freight carried totalled 2,109,000 lb.

The Quebecair fleet consists of four DC-3's, three F-27's, one C-46 cargo aircraft and one D-18 Beechcraft.

TransAir Limited.—TransAir operates scheduled, charter and sportsmen's flights in Manitoba, Saskatchewan, Ontario and the Northwest Territories. Thirty aircraft are in service from headquarters in Winnipeg and a major base in Churchill. Scheduled flights also originate from Pickle Lake and Sioux Lookout in Ontario, and Lac du Bonnet and Norway House in Manitoba. The airline has scheduled Viscount, DC-4 and DC-3 services

over 7,107 unduplicated miles. Mainline stops are made at Winnipeg, Brandon, Dauphin, The Pas, Flin Flon, Lynn Lake, Thompson and Churchill in Manitoba; Red Lake, Winisk and Ottawa in Ontario; Montreal in Quebec; and Yorkton, Regina, Saskatoon and Prince Albert in Saskatchewan. TransAir also has regular flights between Churchill and Rankin Inlet, Baker Lake and Coral Harbour in the Northwest Territories. From its Winnipeg and Churchill bases, TransAir operates vertical re-supply flights to the four main sites in the Canadian sector of the Distant Early Warning Line.

Pacific Western Airlines Ltd.—Pacific Western Airlines Ltd., with head office at Vancouver International Airport, is one of the largest independent air carriers in Canada. Route miles in the system total almost 7,200 and services operated include scheduled mainline, local regular unit toll and charter flights in Saskatchewan, Alberta, Yukon Territory, the Northwest Territories including the Arctic islands, and British Columbia. Regularly scheduled mainline services are operated northbound from Edmonton to Dawson Creek, Peace River, McMurray, Uranium City, Fort Smith, Pine Point, Fort Resolution, Hay River, Yellowknife, Fort Simpson, Wrigley, Norman Wells and Inuvik. Regular local services are flown from Yellowknife to Cambridge Bay and Resolute Bay, and from Inuvik to Aklavik, Fort McPherson and Arctic Red River. Local services also originate from Norman Wells to Fort Good Hope, Fort Norman, Wrigley and Fort Simpson, and from Yellowknife to Rocher River, Port Radium, Coppermine and Bathurst. The first no-reservations-required AirBus service in Canada operates daily between Edmonton and Calgary. Pacific Western also operates International Charter Services.

On the Pacific Coast, mainline services are operated from Vancouver to Comox, Powell River, Campbell River and Port Hardy and local services are operated between Prince Rupert, Stewart, Ford's Cove, Anyox, Maple Bay and Alice Arm in northern British Columbia. In addition, charter services are operated out of Vancouver, Nelson, Kamloops, Prince George, Terrace and Prince Rupert and, in the Northern Division, from Edmonton, Peace River, Fort Smith, Hay River, Yellowknife, Inuvik and Cambridge Bay.

Aircraft operated by Pacific Western number 48 and range from DC-7C's, DC-6B's, DC-6's, DC-4's, Super 46's and DC-3's on mainline services, to Otters, Beavers, Grumman Goose and Cessnas on charter and freight flights. Revenue passengers carried in 1964 totalled 224,139, freight and express carried amounted to 16,914,530 lb. and miles flown numbered 4,608,602.

Commonwealth and Foreign Scheduled Commercial Air Services.—At the end of 1965, there were 22 Commonwealth and foreign air carriers holding valid Canadian operating certificates and licences issued for the following international scheduled commercial air services into Canada:—

Aeronaes de Mexico, S.A. operating between Montreal (Canada) and Mexico City (Mexico).

Air France (Compagnie Nationale Air France), operating between Paris and other points in Metropolitan France, Montreal (Canada) and Chicago (U.S.A.) and beyond.

Alitalia (Italian International Airlines), operating between Rome and Milan (Italy), Montreal (Canada) and Chicago (U.S.A.).

American Airlines, Inc., operating between Toronto (Canada) and New York/Newark (U.S.A.).

British Overseas Airways Corp., operating between London and Manchester (England), Prestwick (Scotland), Shannon (Ireland), Montreal and Toronto (Canada) and Boston, New York and Chicago (U.S.A.), and between London (England), Prestwick (Scotland), Gander (Canada), Bermuda, Nassau, Montego Bay, Barbados and Trinidad.

Deutsche Lufthansa Atkiengesellschaft (Lufthansa German Airlines), operating between Hamburg (Germany) and other points abroad, Montreal (Canada) and Chicago (U.S.A.).

Eastern Air Lines, Inc., operating between the terminals Ottawa and Montreal (Canada) and New York (U.S.A.), and between the terminals Ottawa and Montreal (Canada) and Washington (U.S.A.).

KLM Royal Dutch Airlines, operating between Montreal (Canada) and Amsterdam (Netherlands).

Mohawk Airlines, Inc., operating between Toronto (Canada) and Buffalo (U.S.A.).

- North Central Airlines, Inc.*, operating between Port Arthur/Fort William (Canada) and Duluth/Superior (U.S.A.).
- Northeast Airlines, Inc.*, operating between Montreal (Canada) and Boston (U.S.A.) via Concord, Montpelier-Barre, Burlington and White River Junction (U.S.A.).
- Northwest Airlines, Inc.*, operating between Winnipeg (Canada) and Fargo (U.S.A.) and between Minneapolis/St. Paul (U.S.A.), Winnipeg and Edmonton (Canada), Anchorage (Alaska, U.S.A.) and beyond.
- Pan American World Airways Inc.*, operating between New York and Boston (U.S.A.), Gander (Canada), Shannon (Ireland) and London (England).
- Qantas Empire Airways Ltd.*, operating between Sydney (Australia), San Francisco (U.S.A.) and Vancouver (Canada).
- Sabena Belgian World Airlines*, operating between Brussels (Belgium), Manchester (England), Shannon (Ireland), Montreal (Canada) and New York (U.S.A.).
- Scandinavian Airlines System*, operating between Stockholm (Sweden), Oslo (Norway), Copenhagen (Denmark), Hamburg (Germany) and Montreal (Canada) and New York, Los Angeles and Chicago (U.S.A.).
- Seaboard and Western Airlines, Inc.*, operating between points in the United States, Gander (Canada) and points in Europe.
- Swiss Air Transport Company Ltd.* (Swissair), operating between Zurich and Geneva (Switzerland), Montreal (Canada) and Chicago (U.S.A.).
- United Air Lines, Inc.*, operating between Vancouver (Canada) and Seattle (U.S.A.).
- West Coast Airlines, Inc.*, operating between Calgary (Canada) and Spokane (U.S.A.).
- Western Air Lines, Inc.*, operating between Calgary (Canada) and Great Falls (U.S.A.).
- Wien-Alaska Airlines Inc.*, operating between Whitehorse, Y.T. (Canada) and Fairbanks and Juneau (Alaska, U.S.A.).

Flying Schools and Clubs.—At the end of 1964, 87 commercial flying schools were registered as members of the Air Transport Association of Canada. During the year, these schools instructed and graduated 1,591 students as private pilots and 426 students as commercial pilots.

Membership in the 33 flying clubs connected with the Royal Canadian Flying Clubs Association numbered 7,990 at the end of 1964. During the year these clubs instructed and graduated 1,111 students as private pilots and 83 students as commercial pilots.

Weather Services.—Weather services are provided by the Meteorological Branch, Department of Transport, to meet the demands of the general public and all basic economic endeavours such as agriculture, industry, forestry, shipping and fishing. Meteorological service is provided to national and international aviation. The military meteorological requirements in Canada and overseas are met by special co-operative arrangements with the Department of National Defence. The observing and forecasting of ice conditions in navigable waters, both inland and coastal, have expanded rapidly in recent years.

There are 61 weather offices in Canada, one on shipboard and three in Europe. Weather offices are linked by 55,300 miles of teletype and radio-teletype circuits, and a national facsimile system 14,600 miles long is used for the distribution of meteorological information in chart form. As of Jan. 1, 1965, the Branch maintained 285 surface synoptic and hourly weather reporting stations, a network of 32 radiosonde stations including five in the Arctic operated jointly with the United States, 72 stations recording upper winds, and 2,213 climatological stations. One Ocean Weather Station in the Pacific, 1,000 miles west of Vancouver, is maintained under International Agreement (see also p. 65).

Ground Facilities.—Aircraft landing areas in Canada are listed in Table 2 and classified by administrative agency as licensed or unlicensed land facilities or seaplane bases, and military airfields. Licensed aerodromes are those that are inspected at regular intervals and meet specific standards, whereas unlicensed aerodromes may not meet the same standards. In addition to aerodromes, a network of radio aids to navigation is maintained to facilitate en route navigation and safe landings under instrument conditions.

On Apr. 1, 1965, the Department of Transport operated 73 low frequency radio ranges and 40 VHF omni-directional ranges. Instrument Landing Systems in operation totalled 42 and there were 213 non-directional beacons in operation. All of the operating facilities are regularly flight-checked and calibrated by civil aviation inspectors. (See also item on Aeronautical Navigation, pp. 838-839).

2.—Aircraft Landing Areas classified by Type of Facility and Operator, by Province, as at Apr. 1, 1965

Type of Facility and Operator	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	N.W.T.	Y.T.	Total
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Licensed Airports (Land)—													
Department of Transport.....	2	1	3	2	7	18	4	4	5	22	13	5	86
Municipal.....	1	—	1	5	20	19	6	17	17	19	—	2	107
Private.....	3	2	1	3	24	35	6	10	17	2	1	—	104
Heliports.....	—	—	—	—	3	7	1	—	—	3	1	—	15
Unlicensed Aerodromes—													
Department of Transport.....	1	—	—	—	3	4	1	2	—	9	5	4	29
Municipal.....	3	—	2	1	11	5	3	32	13	14	1	3	88
Private.....	3	1	1	9	28	17	34	109	25	67	5	—	299
Abandoned or unknown.....	4	—	1	—	8	10	2	5	2	36	2	3	73
Heliports.....	—	—	—	—	1	4	—	—	—	3	—	—	8
Licensed Seaplane Bases—													
Department of Transport.....	—	—	—	—	—	—	—	—	—	3	1	—	4
Municipal.....	—	—	1	—	1	13	1	—	1	11	—	2	30
Private.....	6	—	3	—	69	99	44	25	4	52	24	3	329
Unlicensed Seaplane Bases—													
Department of Transport.....	—	—	—	—	1	—	—	—	—	13	—	—	14
Municipal.....	—	—	—	1	1	11	7	4	2	7	—	2	35
Private.....	12	—	—	2	19	12	9	—	5	23	8	—	90
Abandoned or unknown.....	14	1	9	6	21	17	13	9	6	11	25	4	136
Military Airfields—													
RCAF.....	3	1	1	2	5	13	4	4	4	3	3	—	43
Army.....	—	—	—	1	—	1	1	—	2	—	—	—	5
RCN.....	—	—	3	—	—	—	—	—	—	—	—	—	3
U.S. Navy.....	1	—	—	—	—	—	—	—	—	—	1	—	2
U.S. Air Force.....	3	—	—	—	—	—	—	—	—	—	17	2	22
Totals, Land Bases.....	17	4	9	20	105	119	57	179	79	175	28	17	809
Totals, Seaplane Bases.....	32	1	13	9	112	152	74	38	18	120	58	11	633
Totals, Military Airfields.....	7	1	4	3	5	14	5	4	6	3	21	2	75
Grand Totals.....	56	6	26	32	222	285	136	221	103	298	107	30	1,522

Air Traffic Control.—The primary functions of the Air Traffic Control Division of the Department of Transport are to expedite and maintain an orderly flow of air traffic and to prevent collision between aircraft operating within controlled air space and between aircraft and obstructions on the movement area of controlled airports. This is accomplished through airport control, terminal control and area control services. These and other allied services are described below.

Airport Control Service provides control service to flights operating in the vicinity of major civil airports where the volume and type of aircraft operations, weather conditions and other factors indicate its need in the interest of flight safety. The service also includes the control of all traffic on the manoeuvring area of the airport. Control is effected by means of direct radiotelephone communication or visual signals. Airport control towers are located at: Whitehorse, Y.T.; Fort St. John, Prince George, Victoria (international), Port Hardy, Abbotsford and Vancouver, B.C.; Lethbridge, Calgary, Edmonton (industrial) and Edmonton (international), Alta.; Saskatoon and Regina, Sask.; Winnipeg (international),

Man.; Lakehead, Windsor, London, Toronto Island, Toronto (international), Ottawa (international) and North Bay, Ont.; Montreal (international), Cartierville, Quebec, Baie Comeau and Sept Îles, Que.; Moncton, Fredericton and Saint John, N.B.; Halifax (international) and Sydney, N.S.; and Gander (international) and St. John's, Nfld.

Area Control Service provides control service to en route flights operating within controlled airspace during weather conditions that prevent a pilot from seeing other aircraft or obstructions and necessitate his reliance on instruments to conduct the flight. Area control centres are located at Vancouver, B.C., Edmonton, Alta., Winnipeg, Man., Toronto, Ont., Montreal, Que., Moncton, N.B., Goose Bay and Gander, Nfld. Each centre is connected with control towers, terminal control units, communications stations and operation offices within its area by means of an extensive system of local and long-line interphone or radio circuits, and through radio communications facilities available at these stations to all aircraft requiring area control service. Area control centres are also capable of communicating directly with most pilots flying within their control areas. Each area control centre is similarly connected with adjacent centres, including centres in the United States, for the purpose of co-ordinating control of aircraft operating through more than one control area. This communications system permits each centre to maintain a continuous detailed record of all aircraft operating in accordance with the Instrument Flight Rules (IFR) and a general record of aircraft operating in accordance with the Visual Flight Rules within its control area. In addition to providing area control service to aircraft operating within controlled airspace over Newfoundland, the Gander Control Centre provides control service within the airspace over approximately one half of the North Atlantic Ocean. The Vancouver Area Control Centre also provides control service over the Pacific Ocean within the Vancouver Oceanic Control Area.

Terminal Control Service consists of the provision of separation to aircraft operating in accordance with IFR in the vicinity of all controlled airports. This service is normally provided by area control centres but separate terminal control units have been established at Calgary, Alta.; Saskatoon and Regina, Sask.; Lakehead, North Bay and Ottawa, Ont.; Quebec, Que.; and Halifax, N.S.

Northern Area Control Service, inaugurated Sept. 26, 1963, is provided by the Edmonton, Winnipeg and Goose area control centres for aircraft flying above 23,000 feet, and is available throughout more than 3,000,000 sq. miles of Northern Canada.

Radar Control Service is provided extensively in the control of IFR traffic, both in terminal areas and while en route. Terminal service is provided at Vancouver, B.C.; Calgary and Edmonton, Alta.; Regina and Saskatoon, Sask.; Winnipeg, Man.; Lakehead, Toronto, North Bay and Ottawa, Ont.; Montreal and Quebec, Que.; Moncton, N.B.; Halifax, N.S.; and Gander, Nfld. En route service is provided by area control centres and by one radar unit located at Kenora, Ont. Ground Control Approach Service is provided at Gander, Nfld. and Precision Approach Radar Service is provided at St. John's, Nfld.; Montreal, Que.; Toronto, Ont.; Winnipeg, Man.; and Vancouver, B.C.

Flight Information Service is provided by all air traffic control units, but particularly by all area control centres. It consists of advice and information useful for the safe and efficient conduct of flight, including weather reports and forecasts, field condition reports, data concerning aids to navigation, traffic information, refueling and transportation facilities, and other data of assistance to the pilot in planning or conducting a flight.

Alerting Service ensures that appropriate organizations are notified of aircraft that may be in need of search and rescue aid. This entails the maintenance and constant supervision of a continuous record of active flights to ensure that failure of an aircraft to arrive at the planned destination notified to air traffic control is detected immediately. The service is available to any pilot who files either a flight plan or flight notification with air traffic control.

Customs Notification Service facilitates the routine notification of the appropriate customs agency by pilots who plan to cross the Canada-United States boundary at certain designated customs airports. This is achieved through the prompt notification by air traffic control, at a pilot's request, of the customs officer at the destination airport of the intended arrival and of the need for customs clearance.

Airspace Reservation Service provides reserved airspace for specified air operations within controlled airspace and information to other pilots concerning these reservations and military activity areas in controlled and uncontrolled airspace. The Airspace Reservation Co-ordination Office, located at Ottawa, is responsible for co-ordinating all airspace reservations in Canada and in the Gander and Vancouver Oceanic Control Areas.

Aircraft Movement Information Service is provided by area control centres to assist the Department of National Defence in establishing the identification of all aircraft operating within specified areas.

The total number of aircraft movements at Department of Transport controlled airports in Canada during 1964 was 2,281,958.

Section 2.—Civil Aviation Operation Statistics

Table 3 provides a picture of commercial civil aviation in Canada for the years 1961-64. It shows data on miles and hours flown, traffic carried, fuel and oil consumed, employees, salaries and operating revenues and expenses, by type of service, for Canadian air carriers followed by summary statistics for both Canadian and foreign air carriers operating in Canada. Figures for Canadian carriers include domestic and international operations, and figures for foreign companies cover miles and hours flown over Canadian territory only and exclude passengers and goods in transit through Canada. Unit toll service refers to the transportation of passengers or goods at a toll per unit, whereas bulk service is the transportation of passengers or goods at a toll per mile or per hour for the entire aircraft. Other flying services comprise non-transportation services such as flying training, aerial photography and aerial patrol and inspection.

3.—Summary Statistics of Civil Aviation, 1961-64

Item	1961	1962	1963	1964 ^a
Canadian Carriers—				
Unit Toll Transportation (revenue traffic only)—				
Departures.....No.	251,362	250,900	254,762	245,551
Hours flown.....“	327,555	312,395	298,655	300,791
Miles flown.....“	76,008,312	76,040,318	75,746,629	76,403,947
Passengers carried.....“	4,543,009	4,792,409	4,864,855	5,197,308
Cargo and excess baggage.....lb.	80,823,898	93,064,818	99,063,385	117,497,335
Mail carried.....“	35,749,456	38,430,775	41,892,927	46,502,681
Passenger-miles.....No.	3,157,518,367	3,463,727,291	3,623,020,400	3,939,075,129
Cargo and excess baggage ton-miles.....“	38,504,034	45,427,320	53,618,163	69,038,182
Mail ton-miles.....“	14,094,209	15,289,672	17,530,240	18,952,620
Bulk Transportation (revenue traffic only)—				
Departures.....No.	213,044	220,594	234,685	251,270
Hours flown.....“	243,102	230,525	250,988	262,915
Miles flown.....“	21,569,202	23,277,049	26,818,278	26,977,434
Passengers carried.....“	407,888	476,390	562,489	582,121
Freight carried.....lb.	111,504,022	105,082,430	110,102,115	105,896,867
Passenger-miles.....No.	..	..	..	468,308,264
Goods ton-miles.....“	..	..	..	17,837,120
Other Flying Services (revenue traffic only)—				
Hours flown.....No.	75,808	83,382	80,930	96,939
Canadian Carriers, All Services—				
Revenue Traffic—				
Departures.....No.	464,406	471,494	489,447	496,821
Hours flown.....“	646,465	626,302	630,573	660,645
Miles flown.....“	97,577,514	99,317,367	102,564,907	103,381,381
Passengers carried.....“	4,950,897	5,268,799	5,427,344	5,779,429
Goods carried.....lb.	228,077,376	236,578,023	251,058,427	270,196,883
Passenger-miles.....No.	..	..	..	4,407,383,393
Goods ton-miles.....“	..	..	..	105,827,922
Non-revenue Traffic—				
Hours flown.....No.	28,863	25,882	21,738	21,294
Passenger-miles.....“	148,517,121	176,277,219	203,399,987	206,499,238
Goods ton-miles.....“	5,965,235	6,449,798	6,601,370	7,573,401
Fuel consumed.....gal.	175,201,010	191,343,196	207,490,519	218,030,230
Oil consumed.....“	475,994	310,015	405,999	342,903
Average employees.....No.	17,700	17,810	17,577	17,757
Salaries and wages paid.....\$	102,200,745	105,636,970	108,538,372	116,434,943
Operating revenues.....\$	254,873,901	284,618,321	308,835,913	335,021,165
Operating expenses.....\$	257,445,532	277,333,944	294,142,170	315,309,194
Canadian and Foreign Carriers, All Services—				
Hours flown.....No.	649,107	642,284	646,956	678,921
Miles flown.....“	103,335,386	104,851,093	108,282,021	110,068,358
Passengers carried.....“	5,740,577	6,064,074	6,278,298	6,771,993
Goods carried.....lb.	250,069,070	260,084,003	275,899,568	301,265,500

Summary statistics of Canadian and foreign commercial air carriers, by type of carrier, are shown in Table 4 for 1964. For the foreign carriers, hours and miles reported are those flown over Canadian territory only and passengers and goods in transit through Canada are excluded.

It is interesting to note that the six scheduled carriers—those holding Class I or Class II licences from the Air Transport Board—accounted for 91 p.c. of all revenue passengers transported by Canadian carriers during 1964. The weight of goods transported by scheduled carriers amounted to approximately 65 p.c. of the total tonnage moved by all Canadian air carriers.

4.—Summary Statistics of Canadian and Foreign Commercial Air Carriers, 1964

Item	Canadian Carriers		Foreign Carriers		All Carriers
	Domestic Services	International Services	United States	Other Foreign	
Unit Toll Transportation (revenue traffic only)—					
Departures.....No.	212,977	32,574	..	..	..
Hours flown....."	230,101	70,690	4,025	13,095	317,911
Miles flown....."	51,110,296	25,293,651	979,151	5,298,605	82,681,703
Passengers carried....."	3,593,781	1,603,527	670,766	285,518	6,153,592
Goods carried.....lb.	122,844,995	41,455,021	11,010,248	19,862,817	195,173,081
Passenger-miles.....No.	2,233,596,159	1,705,478,970	28,640,311	232,577,627	4,200,293,067
Goods ton-miles....."	56,386,941	31,603,861	253,388	7,560,902	95,805,092
Bulk Transportation (revenue traffic only)—					
Departures.....No.	246,290	4,980	..	..	..
Hours flown....."	248,735	14,180	32	1,124	264,071
Miles flown....."	22,236,076	4,741,358	7,472	401,480	27,386,386
Passengers carried....."	456,454	125,667	4,873	31,407	618,401
Freight carried.....lb.	104,916,003	980,864	—	195,552	106,092,419
Passenger-miles.....No.	83,268,772	380,041,492	..	..	..
Goods ton-miles....."	17,633,274	203,846	—	..	..

5.—Expenditure and Revenue of the Department of Transport in connection with Air Services, Years Ended Mar. 31, 1962-64

Item	1962	1963	1964
	\$	\$	\$
Expenditure			
Air Transport Board	850,941	814,487	632,757
Air Services	5,443,951	5,630,511	5,756,339
General Administration.....	1,786,935	1,908,955	1,939,788
Construction Services Administration.....	3,657,016	3,721,556	3,816,551
Civil Aviation Branch	32,319,901	32,591,336	34,773,191
Control of Civil Aviation.....	3,340,752	4,043,075	5,137,669
Airports and other ground services—operation and maintenance.....	20,762,291	19,754,767	20,280,882
Airway and airport traffic control—operation and maintenance.....	7,500,249	8,168,774	8,717,594
Contributions to assist in the establishment or improvement of local airports and related facilities.....	217,542	244,596	234,921
Contributions to assist in the establishment or improvement of local airports and related facilities.....	105,667	87,600	126,855
Grants to organizations for development of civil aviation.....	393,400	282,474	272,526
Exchequer Court Awards.....	—	10,050	2,744
Telecommunications and Electronics Branch	21,821,570	21,736,705	23,014,265
Radio aids to air and marine navigation—administration, operation and maintenance.....	18,822,907	18,795,872	19,930,988
Radio Act and Regulations—administration, operation and maintenance.....	2,998,663	2,875,287	3,004,437
Northwest Communications Systems—Deficit.....	—	65,546	69,678
Gift of furnishings to ITU.....	—	—	9,162
Meteorological Branch	16,900,780	17,403,992	18,461,452
Totals, Expenditure	77,337,143	78,177,031	82,638,004

**5.—Expenditure and Revenue of the Department of Transport in connection with
Air Services, Years Ended Mar. 31, 1962-64—concluded**

Item	1962	1963	1964
	\$	\$	\$
Revenue and Receipts			
Air Services Administration	8,680	13,128	6,894
Construction Branch Administration	1,589	572	694
Civil Aviation Branch	14,758,453	15,676,753	17,189,574
Private air pilots' certificates.....	19,415	18,135	18,402
Airport licence fees.....	1,045	1,300	1,795
Aircraft registration and airworthiness certificates.....	15,191	14,155	14,508
Fines, Aeronautics Act.....	6,707	7,246	5,866
Land rental.....	473,585	494,854	536,420
Other rentals (living quarters, hangar space, equipment, restaurants and snack bars, etc.).....	2,328,448	2,372,865	2,437,895
Concessions (gasoline and oil, taxi, restaurant and snack bars, telephone, parking, car rentals, etc.).....	3,208,950	3,786,018	4,127,031
Aircraft landing fees.....	6,580,628	7,085,134	8,093,469
Aircraft parking and handling.....	71,243	78,086	120,462
Power services.....	140,822	163,234	255,717
Mess receipts.....	66,667	26,841	2,560
Telephone service.....	3,519	5,094	5,082
Observation roof—turnstiles.....	109,421	122,976	133,673
Hangar storage space and heating.....	52,899	82,420	74,380
Sanitary fees.....	43,750	74,285	30,916
Sales (water, land and buildings, parking meters, etc.).....	277,833	268,476	310,039
Gander Airport (coal sales, heating, electricity, etc.).....	54,661	48,901	37,874
Interest on investment.....	9,811	8,620	—
Air route facilities fees.....	742,667	444,438	212,730
Joint user terminal facilities charge.....	213,804	313,098	340,776
Air Traffic Control Division.....	3,391	678	440
Sundry services and sundries.....	247,454	144,168	256,694
Refunds of previous years' expenditure.....	86,542	115,731	172,847
Telecommunications and Electronics Branch	3,002,717	3,419,280	3,848,166
Air-ground radio services.....	856,574	856,377	1,458,231
Communication facilities.....	2,318	2,326	2,093
Message tolls.....	390,757	334,864	305,114
Private commercial broadcasting station licence fees.....	739,694	1,109,160	975,200
Radio operators' examination fees.....	7,645	6,931	5,399
Radio station licence fees.....	384,545	500,981	486,487
Rentals (living quarters, space control lines and power, etc.).....	533,172	515,131	533,219
Sales (land and buildings, power services, publications and miscellaneous).....	16,456	32,163	32,722
Telephone and telegraph services and tolls.....	6,793	307	143
Miscellaneous.....	11,278	11,994	16,882
Refunds of previous years' expenditure.....	53,485	49,046	32,676
Meteorological Branch	248,307	244,503	222,168
Totals, Revenue and Receipts	18,019,746	19,354,236	21,267,496

Table 6 shows the number of civil air personnel and airport licences in force and the number of civil aircraft registered at the end of each of the years 1963 and 1964.

**6.—Personnel and Airport Licences in Force and Aircraft Registered as at Dec. 31,
1963 and 1964**

Item	1963	1964	Item	1963	1964
	No.	No.		No.	No.
Personnel Licences in Force—			Personnel Licences in Force—		
Pilot—			concluded		
Glider.....	665	686	Flight engineers.....	38	36
Private.....	16,393	16,085	Aircraft maintenance engineers.....	2,270	2,302
Commercial.....	2,359	2,552	Airport Licences in Force	597	3,249
Senior commercial.....	368	379	Aircraft Registered—		
Airline transport.....	1,355	1,399	Commercial.....	1,929	1,949
Totals, Pilot Licences	21,140	21,101	Private.....	4,172	4,544
Air navigators.....	91	92	State.....	191	200
Air traffic controllers.....	814	819	Totals, Aircraft Registered ..	6,292	6,693

PART VI.—OIL AND GAS PIPELINES*

Oil Pipelines.—The network of oil pipelines that has been built in Canada is a complex of many systems designed to move oil as cheaply as possible from the producing fields to points of consumption, which in most cases are refineries. The Canadian network is not as vast as the United States complex or possibly that in the Soviet Union but it is at least the third largest in the world. At the end of 1964 almost 11,800 miles of oil pipelines were in operation. Almost every oilfield in Canada is served by pipeline and oil generally passes through several lines before it finally is delivered to refinery storage tanks. Refineries in Canada from the West Coast to and including Ontario receive by pipeline a wide selection of crude oils.

The prime components of the Canadian network are the main trunk lines of the Interprovincial Pipe Line Company and the Trans Mountain Oil Pipe Line Company. Both systems are described in some detail below but, in essence, Interprovincial carries crude oil eastward from Edmonton picking up and discharging oil at various locations along its length and Trans Mountain operates similarly westward from Edmonton. Feeding these two trunk lines are pipeline systems funnelling oil from hundreds of fields into storage tanks at pipeline terminals. Some of the feeder lines are impressive systems in themselves, not only in size and length of pipe but in the volumes of oil that they transport. Most of the feeder lines are in Alberta, which is to be expected because of the pre-eminent position of that province in oil production. The main pipeline terminal is Edmonton, to which are connected eight crude oil feeder lines, including the extension of the Interprovincial pipeline to Redwater, as follows:—

<i>Pipeline</i>	<i>Length</i> miles	<i>Capacity</i> bbl./day	<i>General Area of Supply Related to Edmonton</i>
Britamoil Pipe Line Co.....	410	60,000	south-southeast
Federated Pipe Lines Ltd.....	450	109,000	northwest
Imperial Pipe Line Co.....	313	83,000	southwest
Interprovincial Pipe Line Co.....	31	112,000	northeast
Pamoil Ltd.....	82	15,000	southeast
Peace River Pipe Line Co.....	600 ¹	58,000	northwest
Pembina Pipe Line Co.....	880	154,000	west-southwest
Texaco Exploration Co.....	—	111,000	south.

¹ Includes lateral line running from Fox Creek south to Trans Mountain pipeline near Edsen, having a capacity of 20,000 bbl./day.

In addition, Gibson Associated Oil Ltd. makes pipeline deliveries to Interprovincial at Hardisty east of Edmonton from fields just south of the pipeline terminal, the pipeline having a capacity of 15,000 bbl./day. Also at Hardisty, Husky Pipe Line Ltd. takes delivery of condensate from Interprovincial and delivers blended heavy crude oil from Lloydminster through a twin pipeline system having a blended crude capacity of 30,000 bbl./day. A third pipeline, Bow River Pipe Line Ltd., transports crude to Hardisty from areas as far south as Princess and thus serves the heavy oil fields east of those on the Britamoil line. Home Oil Limited has a pipeline serving refineries in the Calgary area, transporting crude from the fields northwest of the city, and also makes deliveries to the Rangeland pipeline going toward Edmonton. From the historically important Turner Valley field and other fields in the region to the west of Calgary, Valley Pipe Line Company operates a 15,000 bbl./day pipeline which transports oil to Calgary.

In British Columbia, a single oil pipeline stretches from Taylor, where the Alaska Highway crosses the Peace River, to the Trans Mountain pipeline at Kamloops, a distance of 504 miles. The capacity of the 12- and 16-inch pipeline, which carries crude oil and condensate from gathering systems and gas-processing plants in northeastern British Columbia, is 45,000 bbl./day. Serving this line are two gathering systems.

* Prepared in the Mineral Resources Division, Department of Mines and Technical Surveys, Ottawa.

Three main pipeline systems deliver crude oil from Saskatchewan fields to the Interprovincial pipeline. The smallest, with a capacity of 10,000 bbl./day is the mid-Saskatchewan pipeline of Royalite Oil Company which carries crude oil from the Coleville-Doddsland area of western Saskatchewan to the Kerrobert terminal on Interprovincial. The largest system serving Saskatchewan fields makes its delivery at Cromer, Man. This is a combined system and is made up of the Producers Pipelines Ltd. numerous gathering systems and the main trunk line of its wholly owned subsidiary, Westspur Pipe Line Company. There are 185 miles of main trunk line, looped between Steelman and Cromer, and capable of delivering 175,000 bbl./day to Interprovincial. Also linked to this line is the pipeline of Trans Prairie Pipelines Ltd. which makes deliveries to the Steelman terminal from fields farther west. The South Saskatchewan Pipe Line Company pipeline serves the medium-gravity, crude oil fields in the far southwestern part of the province and carries crude to refineries at Moose Jaw and Regina and to the Interprovincial terminal at Regina. It has about 320 miles of pipe and can deliver up to 59,000 bbl./day.

In Manitoba there is only one pipeline bringing crude from the fields located between Brandon and the Saskatchewan border. Here, Trans Prairie operates a system that can deliver volumes up to 23,000 bbl./day.

Interprovincial Pipeline.—Canada's longest oil pipeline, the system of Interprovincial Pipe Line Company, including its wholly owned subsidiary in the United States, Lakehead Pipe Line Company Incorporated, has a right-of-way length of 2,025 miles including a lateral to Buffalo, N.Y., of 95 miles. Total pipeline mileage in the right-of-way was 3,481 at the end of 1964. The system has two complete oil lines from Edmonton to Superior, Wis., and in certain sections there are three. The pipeline can deliver 15 grades of crude oil. Capacity of the various sections of the pipeline is shown below with 1964 year-end capacity and capacity after intended 1965 construction is completed.

<i>Section</i>	<i>1964</i>	<i>1965</i>
	<i>bbl./day</i>	<i>bbl./day</i>
Edmonton-Regina.....	363,000	364,000
Regina-Cromer.....	370,000	428,000
Cromer-Gretna.....	538,000	575,000
Gretna-Clearbrook.....	490,000	543,000
Clearbrook-Superior.....	496,000	533,000
Superior-Sarnia.....	416,000	434,000
Sarnia-Port Credit.....	193,000	220,000
Westover-Buffalo.....	36,000	36,000

Interprovincial serves 26 refineries as follows: one at Lloydminster via the Husky pipeline; one at Saskatoon via Saskatoon pipeline from Mildren; one at Moose Jaw via B-A Saskatchewan pipeline from Stony Beach; two at Regina; one at Brandon via Anglo Canadian pipeline from Souris; two at Winnipeg via Winnipeg pipeline from Gretna; 11 in the United States either directly or through connecting carriers; three at Sarnia; two at Oakville; one at Clarkson; and one at Port Credit.

Trans Mountain Pipeline.—The system of Trans Mountain Oil Pipe Line Company extends from Edmonton to Vancouver via Jasper and has a right-of-way length of 780 miles, including 57 miles in the United States which are owned by a wholly owned subsidiary of Trans Mountain. However, there are two 51-mile loops in the Canadian system so that total mileage of pipe is 882 miles. The capacity of the line is 250,000 bbl./day. Trans Mountain serves eight refineries—one at Kamloops, four at Vancouver and three in the Puget Sound region of Washington State.

Montreal-Portland Pipeline.—The Montreal refinery centre is served by a 236-mile pipeline which is a joint system of Montreal Pipe Line Company and its wholly owned subsidiary in the United States, Portland Pipe Line Corporation. This line takes delivery of tanker-borne crude oil at Portland, Maine. The line can deliver 272,000 bbl./day and serves all six of the refineries at Montreal.

Product Pipelines.—There are a number of product pipelines operating in Canada that constitute part of the oil pipeline industry. Perhaps, in the strictest sense, all are not product pipelines since there is often a connotation with product pipeline which denotes refined petroleum products and at one time pipeline transportation of products usually meant gasoline and the distillate fuel oils. Heavy fuel oils are not normally transported by pipeline. However, in more recent times and particularly since the emergence of liquid hydrocarbon production from gas fields, principally in Alberta, other classes of pipeline have come into operation. Some of these are classed with crude oil pipelines because they move condensate or pentanes plus which need further processing but most also move propane and butane which are finished products. Whether they are crude or product pipelines is not important but they are described below to complete the picture of Canadian oil pipelines.

There are three pure product lines in Eastern Canada, all supplying markets in Ontario. Two pipelines, Sun-Canadian Pipe Line Company and Sarnia Products Pipe Line, run from refineries at Sarnia to bulk plants in London, Hamilton and Toronto. Trans Northern Pipe Line Company, once a pipeline carrying products from Montreal to markets in Ontario as far west as Hamilton, now is a divided line. Products from Montreal are carried only to the area from Brockville east, including the Ottawa valley; products from refineries west of Toronto are carried eastward as far as Kingston.

In Western Canada, the recently constructed Petroleum Transmission Company pipeline carries propane, butane and pentanes plus from a plant at Empress in Alberta to Winnipeg in Manitoba, a distance of 578 miles. The predominant product carried is propane which is marketed at various locations along the line. Elsewhere in Alberta, the Rimby Pipe Line Company transports condensate from the Rimby gas plant and from the Rangeland condensate pipeline serving areas north of Calgary to Edmonton. Also going to Edmonton are three separate pipelines, one each for propane, butane and pentanes plus, running from the Leduc conservation gas plant. Near Calgary, Home Oil Company operates a condensate pipeline to serve refineries there and also to make deliveries to the Rangeland condensate pipeline. There are other condensate pipelines in Alberta, most of which are primarily associated with production and do not serve end users.

Pipeline Tariffs.—Typical of the charges to move crude oil are the following pipeline tariffs:—

	<i>Charge</i>	<i>Distance</i>
	cts. per bbl.	miles
Edmonton to Vancouver.....	40.0	718
Edmonton to Regina.....	43.2	438
Edmonton to Winnipeg.....	29.6	847
Edmonton to Sarnia.....	43.0	1,743
Edmonton to Port Credit.....	51.0	1,899
Portland to Montreal.....	10.5	236

Natural Gas Pipelines.—Few countries are fortunate enough to possess large resources of natural gas and sufficient markets to justify construction of country-wide networks of gas pipelines. Canada has become one of those few only within the past decade.

It was not until 1958 that Canadian natural gas was used in all provinces from Quebec westward. The development of gas gathering systems within the fields, of gas-distribution systems in the consuming areas, and of main transmission systems joining the two reached the position where, at the end of 1964, there was a total of over 41,800 miles of gas pipelines in Canada—4,958 being gathering, 13,274 being transmission and 23,574 being distribution.

Unlike oil pipeline companies which are common carriers (i.e., they do not own the oil in their lines), gas pipeline companies, with few exceptions, own the gas they transport. The principal exception is the Alberta Gas Trunk Line Company which transports virtually all of the gas exported from the province to the Alberta boundary where main transmission

lines take delivery. This is a significant pipeline because most of the Canadian gas resources are in Alberta. Alberta Gas Trunk has three complete systems: the Plains Division, which carries gas consigned to Trans-Canada Pipe Lines Limited and can deliver 1,275,000,000 cfd. (cubic feet a day); the Foothills Division, which carries gas consigned to Alberta Natural Gas Company (part of the system that goes southward through Idaho to as far as California) and Canadian Montana and can deliver 665,000 cfd.; and the Northern Division, which serves Westcoast Transmission Company and can deliver 58,000 cfd.

General details of the main transmission systems are given in the following paragraphs.

Trans-Canada Pipeline.—The Trans-Canada pipeline, extending from the Alberta border near Burstall, Sask., makes its way roughly eastward through Saskatchewan and Manitoba to the Lakehead cities of Port Arthur and Fort William and then follows a broad, northerly-arched route through the clay belt of Ontario, then southward via North Bay to Toronto. Here the line divides, one part going to the westerly regions of Ontario and the other eastward along the northern shore of Lake Ontario and the St. Lawrence River to Montreal. Lateral lines serve communities that are not within the immediate reach of the main pipeline. Trans-Canada is Canada's longest pipeline with a right-of-way distance of 2,145 miles not including laterals, such as the spur line from near Winnipeg to the United States border where up to 200,000,000 cfd. may be exported. Another, although less important from the volume viewpoint, is a line to the State of New York which crosses the St. Lawrence River near Cornwall. Trans-Canada can deliver to distribution companies and for export some 1,240,000,000 cfd.

Westcoast Transmission Company.—The Westcoast pipeline picks up most of its gas from fields in the northeastern portion of British Columbia. It runs roughly southward to Vancouver and to the United States border near Sumas, B.C. Although it takes delivery of some Alberta gas from Alberta Gas Trunk, the company has a gathering system in Alberta in the general region east of Dawson Creek. Westcoast also gathers gas from other fields in British Columbia and in 1964 completed an extension to the far northern reaches of the province near Fort Nelson. Capacity of the Westcoast pipeline to deliver gas to distributors and for export is over 500,000,000 cfd.

Alberta Natural Gas Company.—The Alberta Natural Gas pipeline is only 107 miles in length and extends through the Crowsnest Pass to Kingsgate, B.C., where it crosses the border into the State of Idaho, which line eventually proceeds to California. Gas in this pipeline is owned in part by Westcoast for its export market in the Pacific northwest United States and in part by Alberta and Southern Gas Co. Ltd. on behalf of a California utility company.

Other Gas Pipelines.—Canadian Montana takes gas from Alberta via Alberta Gas Trunk in the western part of the province at Carway, south of Cardston and through its own gathering facilities in the southeastern part of the province. The Saskatchewan Power Corporation owns and operates a gathering transmission and distribution system in Saskatchewan and buys some gas directly from Trans-Canada Pipe Lines Limited. In Ontario, Union Gas Company operates a gathering and distribution system in the southwestern part of the province.

Oil Pipeline Statistics.*—There were 42 oil pipeline companies operating in Canada at the end of 1964. Pipeline deliveries shown in Table 1 were made to non-pipeline carriers, foreign pipelines, and terminals including refineries and distributing centres.

* Statistics of oil pipelines are given in greater detail in the DBS monthly report *Oil Pipe Line Transport* (Catalogue No. 55-001).

1.—Pipeline Movements of Oil, 1961-64

Item	1961	1962	1963	1964
	bbl.	bbl.	bbl.	bbl.
Receipts				
Crude Oil, Condensate and Natural Gasoline—				
Canadian.....	221,622,809	254,874,604	274,030,166	297,792,525
Imports.....	79,831,149	78,811,557	93,559,497	94,230,399
Liquefied Petroleum Gases and Products—				
Canadian.....	50,735,920	53,435,886	63,050,700	67,285,979
Imports.....	303,976	337,548	441,095	544,040
Totals, Net Receipts.....	352,493,854	387,459,595	431,081,458	459,852,943
Deliveries				
Crude Oil, Condensate and Natural Gasoline—				
Canadian.....	232,892,272	245,872,459	273,784,220	290,207,682
Exports.....	67,154,419	85,789,864	90,248,379	101,532,615
Liquefied Petroleum Gases and Products—				
Canadian.....	50,653,585	52,800,070	62,414,709	64,803,049
Exports.....	191,595	831,974	1,034,308	2,712,817
Totals, Net Deliveries.....	350,891,871	385,294,367	427,481,616	459,256,163

Revenue and employee data shown in Table 2 are not complete; both revenue and employee figures have been omitted for some companies, since pipeline operation forms only a part of the activities of these establishments and the data are not separable.

2.—Operating and Financial Statistics of Oil Pipelines, 1961-64

Item	1961	1962	1963	1964
Pipeline Milage—				
Trunk lines..... No.	6,390	6,543	6,926	7,952
Gathering lines..... "	3,164	3,494	3,681	3,792
Daily Av. of Net Deliveries—				
Trunk lines..... bbl.	943,820	1,038,194	1,164,640	1,240,007
Gathering lines..... "	582,381	658,595	696,229	737,118
Barrel Miles—				
Trunk lines..... '000	147,032,151	166,208,113	175,492,600	191,241,600
Av. Miles per Barrel—				
Trunk lines..... No.	427	439	410	416
Property account..... \$	535,626,151	557,709,996	582,515,772	617,758,245
Long-term debt..... \$	322,671,204	309,781,883 ^r	298,791,748	291,144,511
Operating revenues..... \$	106,728,135	122,747,571	128,635,447	138,478,844
Operating expenses..... \$	24,554,444	28,056,494	30,436,544	32,118,605
Net income (after income tax)..... \$	30,715,081	35,663,637 ^r	39,318,153	45,997,272
Av. employees..... No.	1,498	1,496	1,501	1,492
Salaries and wages..... \$	9,579,373	9,934,058	10,323,846	10,665,313

Gas Pipeline Statistics.—As already stated, the natural gas transport industry became a significant factor in the Canadian economy in 1957 with the completion of the first of several extensive pipelines constructed to transport natural gas from the field or processing plant to distribution outlets. Consequently, the distribution industry also greatly increased deliveries to consumers from that time. Tables 3 and 4 illustrate this expansion for the years 1961-64.

3.—Receipts and Disposition by Natural Gas Utilities, 1961-64

Item	1961	1962	1963	1964
	Mcf.	Mcf.	Mcf.	Mcf.
Receipts				
Transport system.....	388,499,834	562,156,054	638,295,918	727,827,360
Distribution systems.....	172,218,764	219,107,443	208,554,958	216,418,402
Imports.....	5,480,890	5,477,463	6,823,374	9,641,684
Other.....	68,383	14,383	257,398	333,127
Totals, Net Receipts.....	566,267,871	786,755,343	853,931,648	954,220,573
From storage.....	25,021,398	26,376,059	27,629,780	27,179,191
Totals, Supply.....	591,289,269	813,131,402	881,561,428	981,399,764
Disposition				
Sales to ultimate consumers.....	370,739,542	412,061,509	451,598,298	504,503,388
Exports.....	168,912,754	342,812,316	359,606,260	392,239,429
Other.....	3,504,483	4,080,681	833,466	2,701,725
Totals, Net Deliveries.....	543,156,779	758,954,506	812,038,024	899,444,542
To storage.....	29,666,671	26,034,086	35,960,581	35,515,628
Line pack fluctuation.....	1,551,709	159,985	403,645	683,907
Gas used in system.....	12,442,768	17,145,463	21,195,062	30,126,023
Line losses and unaccounted amounts.....	4,471,342	10,837,362	11,964,116	15,629,664
Totals, Demand.....	591,289,269	813,131,402	881,561,428	981,399,764

4.—Operating Statistics of Natural Gas Utilities, 1961-64

Item	1961	1962	1963	1964
Daily average sendout.....Mcf.	1,569,379	2,150,654	2,323,284	2,554,536
Operating revenues.....\$	309,843,049	369,153,436	396,536,151	..
Salaries and wages.....\$	52,502,208	54,540,602	57,726,901	..
Average annual earnings per employee.....\$	4,895	5,150	5,288	..

CHAPTER XX.—COMMUNICATIONS

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

Communications media in Canada have been shaped to meet the needs of the country. Great networks of telephone, telegraph and radio services, inextricably bound together, provide adequate and efficient service which, in this era of electronic advancement, is under continual technological change and development. The familiar challenges of the country—its size, its topography, its climate, its small population—which have reared their heads in other areas of development, have had to be faced as well in the field of communications. That these have been met is evidenced by the fact that today Canada possesses communication facilities and services second to none in the world.

Section 1.—Telecommunications*

During the past half-century, Canada has experienced tremendous economic expansion. Population growth and the advance to new industrial frontiers have been matched by an upward surge in national productivity and general standard of living. Continuing development of Canada is dependent on both individual pioneering and the co-operative efforts of many industries and the telecommunications industry is filling a vital role in this drama of growth.

Business and industry have expanded and ventured into isolated areas assisted and promoted by Canadian telecommunications industries which have anticipated the needs of the future with vast programs of development in virgin territories. Technological development has been particularly important to the extension of telecommunications in Canada. To meet the demands placed upon it, the industry has constantly introduced newer and better equipment, tools and methods of operation. In the growth of urban centres, the development of rural communities and the pioneering of new territory, Canadian telecommunications agencies through the years have sought to provide the highest quality of service for the greatest number of people. The major railways, the

* Subsections 1 and 4 to 7 were revised in the Telecommunications and Electronics Branch of the Department of Transport, Ottawa. Textual data in Subsection 2 were prepared by The Bell Telephone Company of Canada, Montreal, and in Subsection 3 by Canadian Pacific Telecommunications Department, Montreal. Statistical material of Subsections 2 and 3 was revised in the Public Finance and Transportation Division, Dominion Bureau of Statistics.

hundreds of co-operating telephone companies, the radio and television companies and federal communications organizations work together with a common purpose—building networks of telecommunications from coast to coast.

The major railways, the Canadian National and Canadian Pacific, in addition to meeting their own railway communication needs, provide a wide range of services including telegram and cablegram service, data processing systems, radio and television network services, facsimile and wire photo services, telemetering, complex teletype and data switching centres, and other forms of voice and record communications. At the end of 1964, there were about 8,000 customer installations in Canada for Canadian National-Canadian Pacific telex service; each installation has access to the other and also to world-wide telex networks in other countries.

In 1963, Canadian National-Canadian Pacific completed construction of a high-grade microwave radio relay system between Montreal and Vancouver. This system is capable of carrying 600 voice channels which are used for the transmission of all forms of voice and record communications and can be expanded readily by the addition of radio channels to provide network television service or increased circuitry for general communications use. This system links up with the railway microwave facilities running east from Montreal to St. John's in Newfoundland and thus completes the railways' transcontinental microwave capability. In 1965, CN-CP constructed a microwave link between Toronto and Buffalo to provide interconnection with the Western Union Telegraph Company's microwave system in the United States.

Increased civil and military interests in the Canadian northwest have created a need for all forms of communications services and to meet this need the Canadian National Telecommunications (CNT) has undertaken several major projects:—

- (1) A 1,200-mile microwave system between northern Alberta and the Yukon-Alaska border was completed in July 1961. Starting at Grande Prairie, 450 miles north of Edmonton, this network proceeds northward through Alberta, crosses the northeast corner of British Columbia and, following the Alaska Highway through Yukon Territory, joins an interchange system at Mount Dave on the Yukon-Alaska border. At Grande Prairie, the system joins the Alberta Government Telephones system running southward through Alberta to the Canada-United States border, where it connects with United States networks.
- (2) Construction was completed in mid-1961 of a land-line communications network stretching around Great Slave Lake from Fort Smith on the Alberta-Northwest Territories border to Yellowknife, bringing the full range of communications services to residents of Yellowknife, Fort Rae, Fort Providence, Hay River, Pine Point and Fort Smith. This network is connected to the 'outside' by a microwave system between Hay River and Edmonton; the section of the microwave system within the Northwest Territories was constructed by CNT and the Alberta section by Alberta Government Telephones.
- (3) Construction was completed in late 1962 of a tropospheric scatter communications system that extends from Hay River in the Northwest Territories to Lady Franklin Point on Victoria Island in the Arctic Archipelago. This system is used for defence purposes and enables CNT to provide various types of communication service to such outlying communities as Coppermine and Cambridge Bay.
- (4) A 1,200-mile telephone pole-line is under construction down the length of the Mackenzie River from Hay River to Inuvik which, when completed in 1966, will provide simultaneous long-distance telephone, teletype, telex, commercial telegraphs, air operational and weather communications to Fort Simpson, Wrigley, Fort Norman, Norman Wells, Fort Good Hope and Inuvik; Aklavik, Fort McPherson and Arctic Red River will be linked to the system at Inuvik by very-high-frequency radio communications. Service will be instituted at successive communities as construction of the line proceeds northward.

Subsection 1.—Government Control over Telecommunications Agencies

Telephone and telegraph companies incorporated under the Federal Parliament are subject to the jurisdiction of the Board of Transport Commissioners in the matter of rates and practices under the provisions of the Railway Act (see pp. 757-758); other companies are responsible to provincial regulatory bodies. International telegraph and telephone communications are handled subject to the International Telecommunication Convention

and the Regulations thereunder and/or under regional agreements. Tolls charged to the public for radio communication service are subject to the provisions of the Regulations made under the Radio Act. Overseas cables landed in Canada are subject to the External Submarine Cable Regulations under the Telegraphs Act.

Radio communications in Canada, except for those matters covered by the Broadcasting Act, are regulated under the Radio Act and Regulations and also under the Canada Shipping Act and Ship Station Radio Regulations. In addition, radio communication matters are administered in accordance with the International Telecommunication Convention and Radio Regulations annexed thereto; the International Civil Aviation Convention; the International Convention for the Safety of Life at Sea; the Inter-American Telecommunication Convention and the Convention between Canada and the United States of America relating to the operation by citizens of either country of certain radio equipment or stations in the other country; and also in accordance with such regional agreements as the Agreement between Canada and the United States for the Promotion of Safety on the Great Lakes by Means of Radio, the Agreement between Canada and the United States relating to the Co-ordination and Use of Radio Frequencies Above Thirty Megacycles per Second, the Inter-American Radio Agreement, the North American Regional Broadcasting Agreement, the Canada-USA Television Agreement and the Canada-USA FM Agreement (see also p. 836).

National radio broadcasting in Canada entered its present phase in 1936 when, with the passage of the Canadian Broadcasting Act, the Canadian Broadcasting Corporation replaced the Canadian Radio Broadcasting Commission. The Act gave the Corporation wide powers in the operation of a national broadcasting system and gave to the Minister of Transport the technical control of all broadcasting stations.

During 1958 the Government established a Board of Broadcast Governors and the Canadian Broadcasting Corporation Board of Governors was abolished. The Board of Broadcast Governors regulates the establishment and operation of networks of radio and television broadcasting stations, the activities of public and private broadcasting stations and the relationship between them, in the interest of providing a national broadcasting service of high standard, basically Canadian in content and character. Although the Minister of Transport is the licensing authority under the Radio Act, the Broadcasting Act requires that applications for broadcasting station licences or for any change in an existing broadcasting station be referred to the Board of Broadcast Governors for its recommendation before being dealt with by the Minister. (See also pp. 841-842.)

Subsection 2.—Telephones

Alexander Graham Bell first transmitted human speech through electrically energized equipment in March 1876 and a few months later, in August, he successfully completed a call from Brantford to Paris, Ont., the first long-distance telephone call in the world. In the months after, as the instrument was perfected and the public became increasingly aware of its potential, telephone exchanges began to spring up across the nation. Rival companies were established in the same towns and cities and, in places, local subscribers discovered that they needed to subscribe to two different companies if they wished to have access to all the other telephones in their town. As a result, it soon became evident that the telephone industry, because of its mechanical limitations, could be efficient only as a monopoly in the community.

In April of 1880, The Bell Telephone Company of Canada was established by Act of Parliament and was authorized as the official agent for telephone service in 32 cities and towns across the country. However, in the embryonic stages of the industry, one company could scarcely develop and organize service over such a vast and growing nation and for this reason a separate company was formed in British Columbia to handle the communication needs of that province. A few years later, Bell Telephone withdrew from the Maritime Provinces, leaving service in the hands of local companies and again in 1908-09 the Company's territory was reduced when it sold installations and equipment to the respective

provincial governments in the Prairie Provinces. Bell Telephone now serves most Ontario and Quebec communities and parts of Labrador and the Northwest Territories.

To establish a medium for the easy interchange of calls from one company's territory to another, seven major companies worked together to form a national long-distance network. In 1931, these same companies founded the Trans-Canada Telephone System to provide a nation-wide long-distance service and to work toward the standardization of equipment and methods; an eighth company later joined the system. Members now are:—

Alberta Government Telephones
British Columbia Telephone Company
Manitoba Telephone System
Maritime Telephone and Telegraph Co. Ltd.
Saskatchewan Government Telephones
The Avalon Telephone Company, Ltd.
The Bell Telephone Company of Canada
The New Brunswick Telephone Company, Ltd.

This System provides satisfactory long-distance facilities across Canada and also acts as a clearing house to deal with the division of revenues from calls originating in one company's operating territory but terminating in another. In 1956, the Canadian Overseas Telecommunication Corporation, a Crown corporation which handles the transmission of all overseas calls originating in Canada (see p. 834), joined as an associate member. A management committee, comprising one representative from each of the eight member companies, directs the operations of the System. The committee is advised by various functional sub-committees whose members are similarly representative.

To promote co-operation and the exchange of information within the telephone industry across the nation, the Telephone Association of Canada, a non-profit organization devoted to public service, was founded in 1921. Its members comprise, in addition to the eight Trans-Canada Telephone System companies, the Okanagan Telephone Company, Ontario Northland Communications and Quebec-Telephone. Many of the more than 2,000 smaller independent telephone companies have formed other associations, such as the Canadian Independent Telephone Association, the Quebec Independent Telephone Association, and the Saskatchewan Association of Rural Telephone Companies.

Because of the peculiar distribution of the population of Canada, concentrated narrowly along the lengthy southern border, adequate long-distance communication is of great importance in the social and business life of the country. Thus, the Trans-Canada microwave system, the longest single microwave route in the world, stretching more than 3,900 miles from the Atlantic to the Pacific, is the backbone of the Canadian network. In all, the Canadian telephone industry operates more than 12,000 miles of microwave routes, simultaneously carrying many thousands of long-distance telephone calls, large volumes of data messages and a multitude of television programs for the nation's major broadcasting networks.

Because of constantly rising demand for local and long-distance service, the Canadian telephone industry has expanded and continually modernized its facilities. A number of Canadian companies have introduced Extended Area Service in many of the communities they serve, a plan that eliminates long-distance charges between the larger centres and their suburbs, and between many smaller places with a close community of interest. The cost of this service is included in the flat monthly charge for local telephone service.

Direct Distance Dialing (DDD) by both operators and customers provides faster and better long-distance service and at the same time makes the most efficient use of the industry's manpower and equipment. DDD now makes it possible for users to dial their own long-distance calls to more than 6,500,000 telephones in Canada and more than 90,000,000 in North America. Overseas telephone service is provided over facilities of the Canadian Overseas Telecommunication Corporation via cable, high-frequency radio

and satellite circuits through overseas switchboards operated by Bell Telephone in Montreal and the British Columbia Telephone Company in Vancouver. Many overseas calls are dialed direct by the overseas operators. This service is expanding rapidly with the ultimate goal of introducing world-wide customer dialing.

Numerous telephone services are provided for government, business and industry. Special conference circuits can be quickly arranged, enabling business men to discuss their affairs without moving from their desks. Radiotelephone installations link travellers with the regular telephone network, providing mobile service for such users as highway departments, trucking and construction firms, and fire, ambulance and police departments. A pocket radio signaller carried by a person temporarily leaving his telephone lets him know when there is a call for him.

Although improvement and extension of local and long-distance telephone services continue to absorb the bulk of invested money and labour, the increasing mechanization of government and business operations and the resultant need to transmit economically large volumes of information have led to the accelerated development of machine-to-machine communication. This development has been stimulated by the introduction of Data-Phone service which converts electrical impulses from business machines into tone signals acceptable to telephone circuits and again translates them at the receiving end.

Several optional services introduced recently provide great flexibility for machine-to-machine and voice-calling over long distances. Wide Area Telephone Service extends a customer's flat-rate calling to telephones within seven progressively wider zones, the largest of which includes the whole of Canada. Telpak, a private-line, intercity service, is available to organizations that transmit large volumes of information requiring an exceptionally broad band of frequencies with such equipment as computers and high-speed facsimile. It may also be used to carry simultaneously many smaller loads of information, such as voice calls and teletypewriter messages, which require relatively narrow frequency bands.

The scope and value of dial Teletypewriter Exchange Service (TWX) has been enhanced through interconnection of TWX subscribers in Canada with 60,000 TWX users in the United States and 128,000 customers in more than 100 overseas countries. This link makes it possible for TWX users to exchange typewritten information and certain low-speed data over the regular telephone network. Handwritten messages or sketches can be transmitted over private lines or over the regular telephone network through Data-Phone sets.

A Canadian telephone development for business use is Business Interphone. This provides versatile, hands-free intercommunication and regular telephone service in a single instrument. Centrex, designed for large private telephone systems, permits incoming calls to be dialed straight through to an extension without being relayed at the central switchboard. A special type of telephone has been introduced for hard-of-hearing users. Another new service is an automatic dialer which can retain up to 290 telephone numbers in its electronic memory. Canadian telephone laboratories are working on basic research in such fields as electronic circuitry, microminiaturization, solid state physics and ferrites. Applied research has been concentrated on meeting the needs of Canadian subscribers. Touch-Tone service, featuring telephones with pushbuttons in place of the rotary dial, will become available in a growing number of communities in 1966.

The telephone industry is moving toward Electronic Switching which will permit many kinds of new services. Among these are: *Abbreviated Dialing* allowing a caller to reach a list of frequently called numbers, either local or long-distance, by simply dialing two to four digits; *Add-on Service* permitting a subscriber to bring a third party in on an established call; *Conference Service* permitting callers to set up their own conference call; *Call Waiting Service* to inform the customer that a call is waiting and permit him to hold his present connection while answering the new call; and *Transfer Service*, either pre-set or variable, to permit subscribers to have incoming calls automatically transferred to any other designated telephone.

The development of the Canadian North has required the northward extension of telephone communications. Through the provision of radiotelephone service, once-isolated missionaries, miners, government officials and traders are being linked with the world's telephone networks. In 1961, radiotelephone service was established with the opening of a high-frequency radio station at Alma, Que. In 1964, a new high-frequency radio base station was erected at Frobisher, extending the reach of the system and enabling the establishment of many new exchanges in the Far North, including Resolute on Cornwallis Island, 600 miles north of the Arctic Circle; this is the northernmost commercial telephone exchange in the world. In 1965, a very-high-frequency radio link was provided across the Strait of Belle Isle to give direct access from the national network to communities on the Island of Newfoundland. The British Columbia Telephone Company recently installed a highly sophisticated radio system from Port Hardy to Annette Island. Alberta Government Telephones, in conjunction with Saskatchewan Government Telephones, has placed a similar system in operation to link Uranium City in Saskatchewan and Fort Smith in the Northwest Territories. In Manitoba, radiotelephone service reaches out to a large number of isolated settlements and bush camps and provides communication for aircraft and boats plying Lake Winnipeg.

Recently, the Canadian National Telecommunications (CNT) has made a major entry into the field of public telephone service. In Newfoundland, it provides public telephone service at Gander and at many smaller communities; at the end of 1964 there were more than 11,500 telephones connected to CNT exchanges in that province. CNT also supplies local and long-distance public telephone service to about 7,000 subscribers in the Yukon Territory, the Northwest Territories and northern British Columbia. Some of the points served are Hay River, Fort Smith, Yellowknife, Fort Nelson, Watson Lake, Cassiar, Whitehorse, Mayo, Elsa, Keno, Dawson City, Cambridge Bay, Norman Wells and Fort Simpson.

Telephone Statistics.—The number of telephone systems in Canada has shown a slow but steady decrease over the past decade, dropping from 2,788 in 1954 to 2,296 in 1963. Co-operative systems in rural districts decreased from 2,236 to 1,993 in the period and incorporated companies from 389 to 189. The largest of the incorporated companies, The Bell Telephone Company of Canada, which operates throughout the greater part of Ontario and Quebec and in Newfoundland and the Northwest Territories, served 61 p.c. of all the telephones in Canada in both 1962 and 1963 and the British Columbia Telephone Company, also shareholder-owned, served 9.4 p.c. of the total in both years. The number of telephones in use increased by 84.6 p.c. during the 1954-63 period.

1.—Pole-Line and Wire Milage and Number of Telephones in Use, 1954-63

NOTE.—Figures from 1911 are given in the corresponding table of previous Year Books beginning with the 1938 edition.

Year	Systems	Route Milage	Length of Wire	Telephones in Use			
				Business	Residential	Total	Per 100 Population
	No.	miles	miles	No.	No.	No.	No.
1954.....	2,788	257,444	13,357,289	1,153,806	2,706,463	3,860,269	25.4
1955.....	2,739	259,784	14,758,160	1,236,341	2,915,337	4,151,678	26.6
1956.....	2,661	269,303	16,410,897	1,334,403	3,164,922	4,499,325	28.0
1957.....	2,637	274,334	18,161,444	1,409,446	3,417,689	4,827,135	29.1
1958.....	2,619	280,884	20,250,410	1,486,393	3,631,900	5,118,293	30.0
1959.....	2,605	267,737	22,791,129	1,568,735	3,870,288	5,439,023	31.2
1960.....	2,558	274,855	25,333,802	1,673,915	4,054,252	5,728,167	32.2
1961.....	2,509	306,167	26,986,478	1,729,599	4,284,416	6,014,015	32.6
1962.....	2,430	314,523	28,930,413	1,816,895	4,512,553	6,329,448	33.7
1963.....	2,296	284,202 ¹	31,267,977	1,910,178	4,746,435	6,656,613	34.9

¹ Excludes channel milages sometimes included in previous years; also, in 1963 data were collected for underground cable rather than for underground conduit as previously.

2.—Telephones in Use, by Province, 1963

Province or Territory	On Individual Lines		On 2- and 4-Party Lines		On Rural Lines		Public Pay Telephones
	Business	Residential	Business	Residential	Business	Residential	
	No.	No.	No.	No.	No.	No.	
Newfoundland.....	7,784	19,602	762	28,027	—	482	620
Prince Edward Island..	2,213	6,219	74	3,262	353	6,722	164
Nova Scotia.....	16,199	85,718	535	19,284	1,351	29,038	3,151
New Brunswick.....	12,863	47,058	732	30,529	1,067	21,060	2,063
Quebec ¹	157,267	711,585	6,704	258,645	13,694	118,147	23,361
Ontario ¹	215,455	950,258	5,835	460,829	8,289	187,506	26,915
Manitoba.....	28,620	138,362	447	42,362	2,332	35,953	2,543
Saskatchewan.....	25,680	135,658	19	401	5,280	55,857	2,272
Alberta.....	54,435	257,859	9	464	902	30,290	3,137
British Columbia ²	57,765	98,007	452	248,724	3,710	74,804	5,507
Northwest Territories..	490	599	135	1,027	1	19	28
Canada.....	578,771	2,450,925	15,704	1,093,554	36,979	559,878	69,761
	Private Branch Exchange		Extensions		Mobile	Total	Telephones per 100 Population
	Business	Residential	Business	Residential			
	No.	No.	No.	No.			
Newfoundland.....	7,057	—	4,896	4,869	—	74,099	15.2
Prince Edward Island..	1,500	—	1,587	1,456	—	23,550	22.0
Nova Scotia.....	19,041	—	11,040	17,517	—	202,874	26.8
New Brunswick.....	13,656	—	10,538	12,839	517	152,922	24.9
Quebec ¹	217,057	21	129,171	179,488	191	1,815,331	32.9
Ontario ¹	334,135	107	161,585	292,541	590	2,644,045	40.5
Manitoba.....	34,210	—	17,691	22,343	41	324,904	34.1
Saskatchewan.....	22,339	—	11,319	13,358	266	272,449	29.1
Alberta.....	68,327	—	20,184	40,751	979	477,337	33.6
British Columbia ²	73,510	—	45,910	56,693	1,108	666,190	38.4
Northwest Territories..	48	—	457	95	13	2,912	11.6
Canada.....	790,880	128	414,378	641,950	3,705	6,656,613	34.9

¹ Data for Northern Telephone Limited, which operates in Ontario and Quebec, are included in Ontario figures.

² Includes Yukon Territory.

The major telephone systems record completed calls on representative days throughout the year and on this basis estimate the number of local conversations which, added to the actual count of long-distance calls, gives their total volume of business. Estimates are included for the smaller systems.

3.—Local and Long-Distance Calls and Average Calls per Capita and per Telephone, 1954-63

NOTE.—Figures from 1928 will be found in the corresponding table of previous Year Books beginning with the 1939 edition.

Year	Local Calls	Long-Distance Calls	Total Calls	Total Calls per Capita	Average Calls per Telephone		
					Local	Long-Distance	Total
	'000	'000	'000	No.	No.	No.	No.
1954.....	6,209,771	137,761	6,347,532	418	1,608	35.7	1,644
1955.....	6,808,389	153,087	6,961,476	446	1,640	36.8	1,677
1956.....	7,593,525	171,280	7,764,805	486	1,688	38.0	1,726
1957.....	8,077,101	178,608	8,255,709	498	1,673	37.0	1,710
1958.....	8,513,455	194,186	8,707,641	511	1,663	37.9	1,701
1959.....	9,044,825	205,395	9,250,220	530	1,663	37.9	1,701
1960.....	9,364,586	215,275	9,579,861	537	1,635	37.6	1,672
1961.....	10,242,657	226,258	10,468,915	568	1,703	37.6	1,741
1962.....	10,558,129	250,239	10,808,368	576	1,668	40.0	1,708
1963.....	11,065,030	257,548	11,322,578	593	1,662	39.0	1,701

The steady increases in capitalization, revenue and expenditure of telephone companies together with the figures of number of employees and salaries and wages paid are shown for the years 1954-63 in Table 4. Provincial figures for 1963 are given in Table 5.

4.—Financial Statistics of Telephone Systems, 1954-63

NOTE.—Figures from 1911 are given in the corresponding table of previous Year Books beginning with the 1938 edition.

Year	Capital Stock ¹	Long-Term Debt	Cost of Property and Equipment	Revenue	Expenditure	Full-Time Employees	Salaries and Wages ²
	\$	\$	\$	\$	\$	No.	\$
1954.....	418,287,016	498,231,715	1,301,545,688	340,623,170	296,384,292	51,929	159,329,238
1955.....	467,026,669	521,336,006	1,470,679,433	376,716,651	328,880,674	55,673	173,922,973
1956.....	549,196,657	583,795,407	1,672,363,570	422,370,206	366,117,634	60,121	193,992,142
1957.....	627,051,991	683,336,827	1,941,591,700	467,701,983	412,158,348	64,074	219,693,002
1958.....	639,824,492	845,613,559	2,202,747,303	507,689,602	451,672,799	61,400	234,298,163
1959.....	730,874,613	916,791,207	2,444,576,788	582,262,550	509,727,426	58,826	240,691,244
1960.....	758,291,439	1,068,399,476	2,692,484,052	627,982,847	549,012,848	57,670	247,128,467
1961.....	879,424,405	1,134,866,419	2,926,527,459	679,303,194	590,428,169	56,322	254,207,734
1962.....	1,012,220,461	1,151,169,891	3,192,229,994	733,294,451	636,542,442	58,091	269,284,720
1963.....	1,207,147,639	1,144,518,306	3,510,479,137	787,374,716	687,272,971	58,416	288,772,585

¹ Includes premium on capital stock.

² Full-time and part-time.

5.—Financial Statistics of Telephone Systems, by Province, 1963

Province or Territory	Capital Stock ¹	Cost of Property and Equipment	Revenue	Expenditure	Full-Time Employees	Salaries and Wages ²
	\$	\$	\$	\$	No.	\$
Newfoundland.....	10,981,751	27,894,344	4,710,088	4,311,284	752	2,767,114
Prince Edward Island.....	2,690,561	9,361,847	1,857,336	1,638,436	178	586,129
Nova Scotia.....	32,567,056	96,429,237	20,361,366	17,511,196	1,876	7,602,005
New Brunswick.....	33,980,713	90,802,868	19,127,644	16,594,759	1,567	6,678,403
Quebec ³	921,393,244	2,252,301,780	531,699,704	460,463,670	17,591	90,888,340
Ontario.....	11,293,350	60,166,930	16,116,626	12,487,420	19,802	100,365,368
Manitoba.....	2,200	175,414,439	29,334,289	29,361,512	3,900	15,879,502
Saskatchewan ⁴	41,828,533	172,043,408	31,574,535	27,276,243	2,118	9,923,889
Alberta.....	2,542,101	248,847,551	51,720,958	48,288,619	4,850	24,587,460
British Columbia ⁴	149,810,930	377,148,247	80,780,953	69,260,197	5,731	29,174,715
Northwest Territories.....	57,200	68,486	91,217	79,635	51	319,660
Canada.....	1,207,147,639	3,510,479,137	787,374,716	687,272,971	58,416	288,772,585

¹ Includes premium on capital stock.

² Full-time and part-time.

³ Includes data of The Bell Telephone Company, which operates in Quebec, Ontario, Newfoundland and the Northwest Territories.

⁴ Includes data of Northern Telephone Limited, which operates in Ontario and Quebec.

⁵ Excludes employees and salaries and wages of rural systems.

⁶ Includes Yukon Territory.

Subsection 3.—Telegraphs

There were nine telegraph and cable companies operating in Canada during 1964 but, as already stated, telegraph service is provided mainly by the telecommunications departments of the two major railway companies (see also p. 827). The number of telegrams sent continues to decline year by year, giving way to other types of message transmission, but the number of cablegrams sent has been rising. The business of telegraph and cable companies appears to be changing from one of handling messages directly to one of leasing equipment for the transmission of messages by others. Revenues from the latter source have been rising over the past several years and have been the main factor in the steady advance in total operating revenues. Total cost of property and equipment for all telegraph and cable companies was \$425,207,000 in 1964, increasing from \$391,173,000 in 1963.

6.—Summary Statistics of Canadian Telegraphs, 1955-64

NOTE.—Figures from 1920 are given in the corresponding table of previous Year Books beginning with the 1938 edition.

Year	Operating Revenues	Operating Expenses	Net Operating Revenue	Pole-Line Mileage	Wire Mileage	Em- ployees ¹	Telegrams	Cable-grams ²	Money Transfers
	\$	\$	\$	miles	miles	No.	No.	No.	\$
1955....	39,320,960	32,501,844	6,819,116	48,067	438,692	10,852	20,067,424	2,238,433	23,264,851
1956....	40,720,213	33,688,888	7,031,325	48,062	442,891	10,833	20,381,641	2,429,893	24,295,308
1957....	44,796,778	39,271,893	5,524,885	48,379	451,669	11,159	19,163,723	2,580,745	25,586,057
1958....	47,633,991	39,908,538	7,725,453	47,495	464,661	10,587	17,296,786	2,499,871	24,434,887
1959....	52,962,913	43,511,666	9,451,247	47,535	486,875	10,586	16,390,997	2,602,974	25,589,067
1960....	58,546,167	45,538,063	13,008,104	48,159	510,640	10,279	15,546,292	2,663,598	25,134,534
1961....	64,053,626	51,735,006	12,318,620	48,675	524,720	9,997	15,138,706	2,809,691	25,041,156
1962....	71,379,074	56,451,679	14,927,395	48,381	534,074	10,069	14,451,416	2,920,429	28,060,157
1963....	73,611,349	60,256,828	13,354,521	49,536	532,551	9,826	13,338,941	2,939,958	30,133,340
1964....	78,743,332	63,865,422	14,877,910	49,730	537,438	9,431	12,738,652	3,829,856	32,378,177

¹ Excludes commission operators.

² Includes wireless messages and transatlantic telephone and telex messages.

Subsection 4.—Overseas Telecommunications Services

The Canadian Overseas Telecommunication Corporation was established in 1950 to maintain and operate external telecommunication services for the conduct of public communications by cable, radiotelegraph and radiotelephone and any other means of telecommunication between Canada and overseas points; to make use of all developments in cable and radio transmission and reception for external telecommunication services; and to conduct investigation and research with the object of improving and co-ordinating such telecommunication services with the telecommunication services of other parts of the Commonwealth. By 1965 the following services had been established: direct telegraph, telephone and telex communications between Canada and Argentina, Australia, Barbados, Bermuda, Brazil, Britain, Denmark, Finland, France, Germany, Iceland, Italy, Jamaica, Japan, the Netherlands, New Zealand, Norway, Sweden and Switzerland. Direct telegraph and telex services are operated with Belgium and Peru.

The first transatlantic telephone cable, a joint project with the British Post Office, the American Telephone and Telegraph Company, the Eastern Telephone and Telegraph Company and the Corporation, was brought into service in 1956. Apart from normal use of the system for public telephone and telegraph message traffic, capacity is available for private leased circuits. International telex service was introduced to Canada the same year and service with 106 countries is available. Since 1961 the following cables have been made available for service: the Canada-Britain 80-circuit telephone cable (CANTAT); the Canada-Greenland-Iceland 24-circuit cable (ICECAN), primarily intended to meet the North Atlantic communication needs of international civil aviation, and its connecting counterpart between Iceland and Scotland (SCOTICE); a four-party project (Canada-Britain-Australia-New Zealand), part of a Commonwealth round-the-world cable system, consisting of a Canada-New Zealand-Australia 80-circuit telephone cable (COMPAC); and the use of a number of circuits for Canadian purposes in a telephone cable system connecting Bermuda and the United States and in a telephone cable system connecting Jamaica and the United States. A five-party (Canada-Britain-Australia-New Zealand-Federation of Malaysia) project, a section of the Commonwealth round-the-world cable system, will provide, when completed in 1966, an Australia-New Guinea-North Borneo-Singapore-Malaya-Hong Kong 80-circuit telephone cable (SEACOM).

Canada is taking part in negotiations being held among the more advanced nations for the purpose of setting up a global commercial communications satellite system. A communications satellite ground station is being constructed near Liverpool, N.S., by the Department of Transport for experimental purposes. It is designed to improve the

capability of industry and government in this new field and will be available to the Canadian Overseas Telecommunication Corporation for initial direct participation in the commercial satellite system when it becomes operational. As an interim arrangement, the station will be used by the Corporation for commercial communications via the "Early Bird" satellite system. The exploitation of this new technology to supplement existing cable and other facilities and form part of an improved global network will provide a means of meeting the ever-increasing demand for overseas communication services. A list of cables landed in Canada is given in Table 7.

7.—External Cables Landed in Canada, 1964

Company and Station	Cables	Nautical Miles
	No.	No.
Canadian Overseas Telecommunication Corporation (COTC)—		
Halifax, N.S. via Azores to Porthcurno, England.....	1	3,073
Port Alberni, B.C. to Sydney, Australia via Hawaii, Fiji Islands and New Zealand...	1	8,232
Sydney Mines, N.S. via Clarenville, Nfld. to Oban, Scotland ¹	2	2,280
Hampden, Nfld. to Oban, Scotland (CANTAT).....	1	2,010
Hampden, Nfld. to Vestmannaeyjar, Iceland via Greenland.....	1	1,657
Western Union International Inc. (WUI)—		
Bay Roberts, Nfld. to Penzance, England.....	4	8,479
Bay Roberts, Nfld. to Hamill, N.Y., U.S.A.....	2	2,778
Bay Roberts, Nfld. to Azores.....	1	1,343
Heart's Content, Nfld. to Valencia, Ireland.....	4 ^a	7,541
Placentia, Nfld. to St. Pierre and Miquelon Islands.....	2	250
North Sydney, N.S. to St. Pierre and Miquelon Islands.....	3	594
North Sydney, N.S. via Canso to Duxbury, Mass., U.S.A.....	1	695
North Sydney, N.S. to Island Cove, Nfld.....	2	635
North Sydney, N.S. to Colinet, Nfld.....	1	323
Island Cove, Nfld. to St. Pierre and Miquelon Islands.....	1	130
Eastern Telephone and Telegraph Company (ET&T)—		
Sydney Mines, N.S. via Clarenville, Nfld. to Oban, Scotland ¹	2	2,280
Sydney Mines, N.S. via Clarenville, Nfld. to Penmarch, France.....	2	2,400
New Brunswick Telephone Company Limited (NBTEL)—		
Campobello Island, N.B. to Lubec, Me., U.S.A.....	1	0.3

¹ Twin cable from Clarenville, Nfld. to Oban, Scotland, and single cable from Clarenville, Nfld. via Terrenceville, Nfld. to Sydney Mines, N.S. ² Licensed for operation by two carriers—COTC and ET&T. ³ One cable unserviceable.

Subsection 5.—Federal Government Civil Telecommunications and Electronics Services

Radio regulation and radio aids to navigation services are under the jurisdiction of the Telecommunications and Electronics Branch of the Department of Transport. The functions and responsibilities of the Branch may be summarized as follows: (1) administration of the Radio Act and Regulations and the Radio Provisions of the Canada Shipping Act and Ship Station Radio Regulations; (2) research into and development of new and improved communication and electronic equipment and systems needed for aeronautical, marine, meteorological and other services; (3) construction, maintenance and operation of radio aids to marine and air navigation and of radio communication stations including procurement of the necessary equipment; (4) development of policy and plans with respect to international telecommunications by cables, satellites and other media including relations with the Canadian Overseas Telecommunication Corporation; (5) co-ordination of policy governing government use of telecommunication services; (6) administration of the leasing of land-line facilities required for all services of the Department; (7) planning of emergency measures and administration of the Emergency National Telecommunication Organization (ENTO); (8) administration of the Telegraphs Act and the Regulations thereunder covering the licensing of overseas submarine cables; (9) participation in the work of the International

Telecommunication Union and its subsidiary organs; and (10) participation in the communication and electronic activities of the International Civil Aviation Organization (ICAO), the International Air Transport Association (IATA) and the International Marine Consultative Committee (IMCO).

Licensing and Regulation of Radio Stations.—Under the Radio Act and the Canada Shipping Act it is provided that radio stations employing a form of Hertzian wave transmission, including television and radar, be licensed by the Department of Transport, unless otherwise exempted by regulation. Licensing, which provides basic control over the right to establish a radio station, involves the assigning of specific frequencies to each station. Frequencies are assigned to many types of services on a shared non-interference basis. Engineering briefs covering the selection or change of frequency, amount of power and design of the directional antenna system must be approved by the Department of Transport and, before a new broadcasting station can be licensed or before modifications can be made to an existing station, notification is sent to the signatory countries of the North American Regional Broadcasting Agreement, in the case of AM broadcasting stations, and to the United States under the Canada-USA Television Agreement and the Canada-USA FM Agreement, for television and FM broadcasting stations, respectively. The setting of standards for the equipment, installation and operation of a station provides control for efficient use of the radio spectrum. A further control is the requirement that operating personnel be subject to examination and certification.

From time to time the Department of Transport establishes standards governing the technical suitability of radio equipment for licensing in Canada and Radio Standards Specifications and Procedures are issued by the Telecommunications and Electronics Branch in co-ordination with representatives of industry. Before a licence may be issued the radio equipment must comply with the technical requirements of the applicable Radio Standards Specification and be type-approved or declared technically acceptable. Type-approval and technical acceptability briefs may be prepared and submitted by a communications consulting engineer or the necessary tests may be conducted, for a fee, at the Department of Transport Radio Regulations Engineering Laboratory, Ottawa. Approximately 1,200 units were type-approved or declared technically acceptable during the year ended Mar. 31, 1965.

Eight monitoring stations are maintained at suitable points across Canada to observe actual radio spectrum conditions using a variety of modern electronic aids, their purpose being to ensure that radio communications are conducted according to regulatory procedures and to determine causes of harmful interference.

Under the Safety of Life at Sea Convention and the Canada Shipping Act, most passenger ships and larger cargo ships must be fitted with radiotelegraph or radiotelephone equipment, primarily for distress use. Approval is given for each make and model of equipment that comes up to the required standard and, in addition, the ship station as a whole is inspected after the licence is issued and periodically thereafter. All Canadian and foreign ships are subject to inspection to ensure that they conform to the requirements of the Safety of Life at Sea Convention.

Standards have been developed for the installation of aircraft radio stations specifying the techniques and materials that may be used, and inspections of radio stations aboard civil aircraft of all operational categories are carried out at prescribed periods. In-flight inspections of the radio communications and navigational aspects of proposed new air carrier operations, encompassing both land and oceanic routes, are also made as required.

Marine and aeronautical radio operator standards and related regulations are covered by international agreement. The International Telecommunication Convention prescribes the qualifications for radio operators on mobile radio stations and the regulations made under the Radio Act provide for the examination and certification of operators, both professional and amateur.

Number of Radio Stations Licensed in Canada.—The number of licences in effect for radio stations in Canada during the year ended Mar. 31, 1965 was 136,912 compared with 118,354 in 1963-64. These figures include stations operated by departments of federal, provincial and municipal governments, stations on ships and aircraft registered in Canada and mobile stations operating in public and private land mobile services, but do not include private commercial broadcasting licences.

<i>Item</i>	<i>Year Ended—</i>	
	<i>Mar. 31, 1964</i>	<i>Mar. 31, 1965</i>
	No.	No.
New applications received.....	15,968	21,141
Authorizations granted.....	15,229	20,930
Licences cancelled.....	7,382	7,195
Licences renewed.....	82,909	89,507
Amateur licences in effect.....	11,047	11,293
General radio service licences in effect ¹	24,318	36,112
General radio service licences issued during year.....	10,819	11,714
Total licences in effect.....	118,354	136,912
Licence amendments.....	16,326	15,575
Certificates of Registration issued to U.S. licensees.....	1,871	1,202
Net increase of licences in effect over preceding year.....	—	18,558

¹ General radio service licences are valid for a three-year period.

Investigation and Suppression of Inductive Interference.—The Radio Act provides penalties for selling or using apparatus liable to cause interference to radio reception. Standards are developed and type approvals issued for certain classes of such equipment. The Telecommunications and Electronics Branch of the Department of Transport also provides a country-wide interference service using special investigation equipment for the purpose of tracing sources of interference and recommending cures for interference to broadcast, television and other radio reception. Cars equipped for measuring and locating sources of interference operate from offices located in 30 cities throughout Canada; 15,861 cases were dealt with during the year ended Mar. 31, 1965. Sources include power lines, auto ignitions, heavy electrical equipment, domestic appliances, electro-medical apparatus, industrial radio frequency generators and television receivers.

Regulations specifying the limits to be met by particular types of apparatus are contained in the Radio Noise Limits Order and Radio Noise Limits Order Amended. This amendment, introduced on Sept. 24, 1964, designated the limits for noise from television receivers manufactured in Canada or imported into Canada on or after Apr. 1, 1966. Certain low-powered radio transmitting and receiving equipment is exempt from the operation of the Radio Act, e.g., garage door radio controls for a number of models have been exempted and consequently may be operated without the radio station licence otherwise required.

Meteorological Communications.—Weather stations operated by the Meteorological Branch of the federal Department of Transport throughout Canada are linked coast-to-coast by means of teletype and in the remote northern areas by radio or radioteletype. The land-line teletype circuits are leased from commercial companies and the radio circuits are operated chiefly by the Telecommunications and Electronics Branch of the Department of Transport.

Weather stations on the teletype network transmit their reports directly; other stations report via commercial or radio facilities to the nearest station on the teletype line for subsequent transmission on the meteorological circuit. The reports are collected on a regional basis and then relayed to other parts of the country as required. There are two coast-to-coast teletype systems transmitting weather information, with main relay points at Vancouver, Edmonton, Winnipeg, Toronto, Montreal, Halifax, Gander and Goose Bay. These main meteorological communications centres not only handle the distribution of weather information within Canada including the Arctic, but also effect international exchange with

the United States and Europe and, through them, with many other countries. For the latter purpose, the Canadian Meteorological Branch and the British Meteorological Office share the cost of a leased duplex circuit in the transatlantic cable. Altogether, the Meteorological Branch uses 55,000 miles of teletype circuits connecting 352 teletype offices.

In addition, a facsimile network connects forecast offices, including radio facsimile transmission to Arctic stations and ships at sea. Weather charts originating at the Central Analysis Office in Montreal receive national distribution over the network. Regional transmissions of additional charts are distributed on a local basis. Altogether, the Meteorological Branch utilizes 13,600 miles of facsimile circuits, serving 81 offices.

Radio Aids to Marine and Aeronautical Navigation.—Services of the Telecommunications and Electronics Branch of the Department of Transport in aid of marine and aeronautical navigation are outlined in the following paragraphs; details may be obtained on request from the Department of Transport, Ottawa.

Marine Navigation.—Radio aids to marine navigation are provided for radio-equipped Canadian vessels and foreign ships using Canadian waters. This safety and communications service for shipping covers the East and West Coasts, the Great Lakes, the St. Lawrence River and Gulf, Hudson Bay and Hudson Strait and includes regularly broadcast weather reports, storm warnings and notices of dangers to navigation. Ships at sea may obtain medical advice from any coast station. The stations carry out communications by radiotelegraph and/or radiotelephone and many of them provide connections to land telephone lines. Halifax (VCS) and Vancouver (VAI) stations provide a long-range radiotelephone service to ships. Halifax (VCS) and Vancouver (CKN) have radiotelegraph facilities for world-wide communications and participate in the Commonwealth long-range ship communications scheme. Coast stations on Hudson Bay and Hudson Strait, in addition to their regular services, provide commercial communications for posts of the Hudson's Bay Company and various prospecting and development organizations, make weather observations, handle administrative traffic and assist aircraft with information, landing conditions, etc.

Automatic radiobeacon stations are maintained on the East and West Coasts, the St. Lawrence River and Gulf, and Hudson Bay and Strait, giving navigational aid to mariners by transmitting signals on which bearings may be taken. These stations are arranged, where possible, in groups up to a maximum of six stations transmitting in sequence on a common frequency, the sequence being repeated continually regardless of weather conditions.

Loran is a long-range radio aid to marine and air navigation providing accurate fixes at distances up to 600 miles by day and 1,500 miles by night. Two Loran stations operate in Nova Scotia, three in Newfoundland and one on the West Coast. These stations, in conjunction with Loran stations of the United States Coast Guard, give service to ships and aircraft plying the North Atlantic and Pacific Oceans. *Decca* is a short-range radio aid to navigation providing accurate fixes at distances up to 250 miles. Four chains of Decca stations are in operation—the Newfoundland chain, the Nova Scotia chain, the Anticosti chain and the Cabot Strait chain—giving service to ships off Newfoundland and Nova Scotia and in the St. Lawrence River and Gulf.

It has become general practice to equip merchant ships with radar and important buoys are fitted with radar reflectors to increase their radar visibility. Two shore-based radar installations are in operation—one at Camperdown near the mouth of Halifax Harbour and the other on the Lion's Gate Bridge across the entrance to Vancouver Harbour. Low-powered transceivers are provided for use in emergencies at lighthouses, particularly at locations that would otherwise be completely cut off from assistance in case of illness.

*Aeronautical Navigation.**—Radio aids to air navigation are provided from coast to coast and from the Canada-United States border to the Arctic along and off the airways,

* See also the item on Air Traffic Control, pp. 815-816.

and are used by Canadian and foreign air carriers flying over Canadian territory. Six regional offices located at Vancouver, B.C., Edmonton, Alta., Winnipeg, Man., Toronto, Ont., Montreal, Que., and Moncton, N.B., carry out the construction and operation of facilities. Low-frequency radio range stations, located approximately every hundred miles along airways, provide specific track guidance to pilots by means of audible signals which may also be used to obtain direction finding bearings. In addition, radiotelephone communications are available between ground and aircraft, by which means pilots may obtain weather data, air traffic control instructions and other information concerning the safety of flights. Forty very high frequency omni-directional ranges (VOR) are in operation, a type of facility that enables the pilot to select any desired course. The 40 omni-directional ranges have permitted the establishment of VOR airways across Canada and on a number of trans-border routes in co-operation with the United States. Eleven additional installations are under construction.

Aeronautical radiobeacon stations provide radio signals with which pilots may use their direction finding equipment to obtain relative directional bearings. Fan markers operating on very high frequencies are usually placed on an airway to inform the pilot when he may safely lose altitude or to indicate accurately the distance from an airport. Station location markers, similar to fan markers, are installed at most radio range sites; they enable a pilot to determine when he is exactly over the station.

Airport and airway surveillance radars (150 nautical-mile) are in operation at 16 airports for air traffic control purposes. Precision approach radars are in operation at six major airports. Instrument landing systems (ILS) provide radio signals which permit pilots to approach airports for landing during periods of very low visibility. An installation normally consists of a localizer transmitter providing lateral guidance to the runway, a glide path transmitter for slope guidance to the approach end of the runway, two marker transmitters giving distance indications from the runway and a low-power radiobeacon (compass locator) to assist in holding procedures and lining up on the localizer course. Forty-two instrument landing systems are in operation.

Aeronautical radio communications stations are located at strategic points across the country, including the Arctic. These stations, operating for the most part on high frequencies, provide communication with domestic and international air carriers. Thirteen international communications stations, giving coverage from coast to coast and over the oceans, form a major contribution on the part of Canada to international aviation.

Subsection 6.—Public and Private Commercial Microwave Facilities

Canada, because of its population distribution and the vast areas served by microwave communication links, ranks second highest among the world's users of microwave communications systems on a per capita/per mile basis. Because of an increasing demand for television outlets, it has been necessary to extend microwave routes to provide television interconnections for the CBC English, French or private networks. With the use of more automated equipment by industry and various services, associated data and control information must be transmitted at rapid speeds over microwave radio-relay to wide areas of Canada. This Subsection gives a summary of the facilities existing or under construction at the end of March 1965.

Railways.*—The Telecommunications Departments of the Canadian National and Canadian Pacific Railway Companies have placed in operation a microwave system extending from Montreal to the Pacific Coast, which is used for television, telephone and data relay purposes. The railways also operate microwave facilities which link the Province of Quebec with the Maritime Provinces and Newfoundland. In addition, the Canadian National Telecommunications has installed a microwave system between Alberta and the Yukon Territory which carries telephone and data traffic and serves both civil and military

* See also pp. 826-827.

organizations in the area. In co-operation with Alberta Government Telephones a combination microwave and tropospheric scatter system connects Alberta and the Northwest Territories. This system is also intended to provide communication for civil and military use in Far North areas. The Quebec North Shore Labrador Railways has developed a microwave system extending into northern Quebec to provide communication for mining operations and to serve some civil communication purposes. Ontario Northland Railways has completed a microwave installation connecting northern Ontario and James Bay for purposes of military and civil communication. The Pacific and Great Eastern Railway makes extensive use of 6,000 Mc/s microwave facilities linking Vancouver with Prince George and Dawson Creek, B.C.

Telephones.—The Trans-Canada Telephone System consists of eight provincial and private systems collectively providing a transcontinental microwave system for the purpose of carrying telephone, television, data and other types of communication services. Extensive microwave systems are utilized within the respective provinces for civil and military communications or television relay purposes. Major expansion has taken place in each province, greatly increasing the number of areas served and system capacity for all types of communication requirements. Tropospheric scatter systems are employed to provide beyond line-of-sight transmissions especially to the Far North areas; these are used for both civil and military applications. The Northern Telephone Company is expanding its microwave facilities in northwestern Ontario for carrying television program material and civil communications.

Television.—The two main television interests in Canada—the CBC and CTV—lease private microwave facilities for the relay of television programs from coast to coast. In addition, studio transmitter links are used by various television stations where the television transmitter is situated some distance from the studio and interconnection is required. In sparsely populated areas, off-the-air pick-up signals from primary television stations are sometimes relayed via microwave to rebroadcasting sites. Microwave facilities are also used in connection with portable and mobile television pick-up where program material is intended for the main studio.

There has been a great increase in television coverage areas during the past year and the ensuing need for English and French program feeds via microwave relay has resulted in an expansion in the number of leased microwave circuits and new communication routes.

Industrial.—Many firms utilize existing public communication facilities on a lease basis; however, some organizations have installed private microwave systems to provide voice, teletype and control data for various purposes. The British Columbia Hydro and Power Authority, the Calgary Power Corporation, The Hydro-Electric Power Commission of Ontario, the Quebec Hydro-Electric Commission and Manitoba Hydro use a considerable number of microwave relay systems for important control and communication purposes. The Quebec Hydro-Electric Commission has greatly expanded its power generating plants and new microwave routes have been added to permit a central control of the various power generating stations through the use of microwave communication.

Subsection 7.—Miscellaneous Radio Communication Services

In addition to radio communication services provided by the Federal Government, extensive radio communication systems have been established in the provinces, mainly for police, highway and forestry protection purposes. Municipal government departments have steadily increased their use of radio to facilitate operations, particularly as a medium of communication with vehicles—police, fire, engineering, hydro, etc. Such services as taxi, heavy construction, ready-mix concrete, oil pipeline construction and operation, veterinarian and rural medical also make extensive use of radio for communication purposes.

Public utilities, power companies, provincial power commissions, oil exploration and mineral development organizations have expanded considerably their use of radio in both mobile and point-to-point radio fields.

The telephone companies provide an extension of land telephone service, by radio, to suitably equipped vehicles. This service is available in all major cities in Canada and along many of the nation's arterial highways. Restricted common-carrier mobile radio service (this service to vehicles does not permit interconnection with the over-all telephone system but only with specific dispatchers) is available in most major cities in Canada as well as in a number of smaller urban centres. The latter service is provided by telephone companies as well as by other organizations. Low-power radio stations may be licensed to permit short-distance personal and private business radiotelephone communications; since the inauguration of this service in 1962, more than 36,000 licences have been issued.

Subsection 8.—Radio and Television Broadcasting*

Broadcasting in Canada has developed over a period of some forty-seven years as a combination of public and private enterprise. Since the opening program from the first radio station was beamed into a few Montreal homes in 1918, the role of the radio and television program in the daily life of the Canadian family has grown to startling prominence. Today, radio service reaches 98 p.c. and television service over 92 p.c. of the Canadian population.

To have become such an integral force in the daily life of the nation, broadcasting had to learn the needs of the people and how to serve them. Two 'official' languages forming two distinct cultures had to be served independently but without diminishing the concept of national unity. Dozens of other smaller groups, distinct in culture and frequently dwelling in the same radio or TV coverage area but in separate communities with widely divergent program interests, had to be served. Physical problems of distance and geography had to be overcome. It requires some 360 radio transmitters and 221 TV stations and satellites to reach a population distributed across a 4,000-mile southern frontier, through seven time zones and a variety of topographical and climatic regions, and scattered northwest through thousands of square miles to the shores of the Arctic Ocean. Not only do these people have local service that is a reflection of life in their own districts, but by means of 15,000 miles of land-lines for radio networks and 8,500 miles of microwave circuits for television nearly every Canadian may, at the same time, listen or watch as an event of national interest takes place.

Since 1932, a publicly owned body, now known as the Canadian Broadcasting Corporation, created to develop a national service, has worked with the private or independent station-owner to establish this service. A more recent addition (1958) is the Board of Broadcast Governors, which consists of three full-time members including the Chairman and Vice-Chairman and 12 part-time members; the function of the Board is to "regulate the establishment and operation of networks of broadcasting stations, the activities of public and private broadcasting stations in Canada and the relationship between them, and provide for the final determination of all matters and questions in relation thereto". (See also pp. 827-828.) The Canadian Broadcasting Corporation consists of a president and a vice-president and nine other directors appointed by the Governor in Council. It is accountable to Parliament through a Cabinet Minister designated by the Governor in Council and is empowered to establish and maintain program networks and stations. (See also pp. 842-846.)

The Broadcasting Act also requires that, before dealing with any application for a licence to establish a broadcasting station (private or public) or for an increase in power, change of frequency or change of location of a broadcasting station, the Minister of Transport must receive a recommendation from the Board of Broadcast Governors. The same

* Textual information in this Subsection was revised by the Canadian Broadcasting Corporation, the Board of Broadcast Governors and the Canadian Association of Broadcasters; statistical data were prepared by the Public Finance and Transportation Division of the Dominion Bureau of Statistics.

requirement exists with respect to the making of a new regulation or changes in the Regulations under the Radio Act which affect broadcasting stations. Before making an appropriate recommendation to the Minister of Transport, the Board considers all such applications at a public hearing at which the applicant, licensees and the Canadian Broadcasting Corporation are given the opportunity of being heard.

Under the provisions of the General Radio Regulations, Part II, made under the Radio Act, the Minister of Transport must also receive a recommendation from the Board before dealing with any application to change the ownership or control of any share of capital stock in the licensee of a broadcasting station which is incorporated as a private company. The Board of Broadcast Governors has established a policy that any such application which would result in a change of ownership or control of a licensee, would be referred to a public hearing before a recommendation is made to the Minister. Applications of this kind not involving a change of ownership or control may be dealt with by the Board or the Executive Committee of the Board at a regular meeting.

Under the provisions of the Broadcasting Act, the Board has issued the Radio (AM) Broadcasting Regulations, the Radio (TV) Broadcasting Regulations and the Radio (FM) Broadcasting Regulations.

Broadcasting Facilities.—As of Apr. 1, 1965, the CBC had 30 AM broadcasting stations, five FM broadcasting stations, 16 shortwave broadcasting stations, 44 TV broadcasting stations (including satellites) and 128 low-power relay transmitters in operation. On the same date, private companies owned and operated 236 AM broadcasting stations, 51 FM broadcasting stations, six shortwave broadcasting stations and 177 TV broadcasting stations (including satellites). All but 13 of the privately owned television stations and many of the privately owned radio stations are affiliated with the CBC and help to distribute national radio and television services over networks operated by the CBC. Of the 13 unaffiliated private television stations, nine form The CTV Television Network Limited which commenced operating in the fall of 1961; the other stations, located in Quebec City, Chicoutimi, Hamilton and Montreal, are independent of network affiliation.

Operations of the Canadian Broadcasting Corporation, 1964-65

Television.—The extension and improvement of the national television service is of continuing concern to the CBC. At present about 58 p.c. of the more than 14,500,000 Canadians who speak English only or are bilingual receive the complete English-language television service through CBC stations; another 34 p.c. receive partial service from privately owned stations of the CBC English television network. There are 5,700,000 Canadians who speak French only or are bilingual. Complete television service in the French language is available to more than 63 p.c. of them through CBC stations and private affiliates provide partial service to an additional 26 p.c.

Much of the population still to be served is in small, scattered communities; approximately 50 of the 2,000 or more areas are outside the national service coverage. To bring television service to these small communities will be both difficult and costly. The Corporation continuously reviews the possibility of establishing adequate service to them and the priority list changes as circumstances change. The main factor in establishing priorities is the per capita cost, other factors being language and geographic locations, particularly the degree of isolation. The Corporation's long-range plan is to provide, as far as practicable, complete CBC national network programming, both television and radio, to all parts of Canada; the immediate goal is to fill in the gaps not now covered by CBC or affiliated stations.

Because of the rapid expansion of television over the past 12 years, CBC facilities in the large centres are dispersed throughout each. To improve efficiency, the Corporation has planned for the consolidation of the facilities in Montreal and Toronto and studies have been made for consolidation at Vancouver, Halifax, Ottawa and Winnipeg, as funds become available. During 1964-65, new television stations with studio facilities were completed at Quebec, Que., and St. John's, Nfld., the Quebec station (CBVT) being connected to the French TV network and the St. John's station (CBNT) to the English TV network. Both operate from temporary studio quarters with work proceeding on the permanent facilities. French TV network relay transmitters began operating at Cheticamp, N.S., and Timmins, Ont., with associated rebroadcasting stations at Magdalen Islands, Que., and Kapuskasing, Ont. English TV rebroadcasting stations commenced service at Red Lake, Atikokan and Fort Frances, Ont., rebroadcasting the transmissions at Kenora (CBWAT). The two Winnipeg TV transmitters (CBWT and CBWFT) were relocated south of the city and given power increases, thus extending their service areas. The establishment of production facilities and associated transmitters has a twofold purpose—through CBC-owned transmitting facilities, the complete national service is made available to the audience and, through the production facilities, the Corporation is able to tap the program resources of the area and thus eventually reflect the area to the remainder of Canada. This enables the CBC to carry out one of its essential functions, that of showing the parts of Canada to each other or, in other words, of reflecting the country to itself.

The complexities of CBC television broadcasting have greatly increased in recent years in the administrative area and as a result of the setting up of an entirely separate, wholly commercial television network (CTV). Of particular significance for all broadcasters, public and private alike, is the growth in community antenna television systems. These systems, in which the TV receivers of fee-paying subscribers are linked to a common receiving and re-transmission system, make television available to people who could not otherwise receive it and thus, in effect, extend the coverage of existing television stations. The growth of both these systems can have substantial and as yet largely unmeasured effects on television broadcasting itself. A report on the future of community antenna television in relation to ordinary television broadcasting was published by the Board of Broadcast Governors at the request of the Government.

Radio.—The current demand on CBC radio broadcasting is twofold—first, there is the need to bring service to the small percentage of the population now beyond the reach of Canadian radio and, secondly, the need to increase the amount of national service programming distributed by the national radio networks. At present, about 75 p.c. of the more than 14,500,000 Canadians who speak English only or are bilingual receive the complete English-language radio service through CBC stations, and private affiliates provide partial service to another 23 p.c. There are 5,700,000 Canadians who speak French only or are bilingual; complete radio service in the French language is available to nearly 80 p.c. of them and another 14 p.c. are within range of private affiliated stations. At present, some 90 areas with a population of 500 or more do not receive adequate CBC national radio network service. During the year ended Mar. 31, 1965, the national radio service was extended through privately owned affiliated stations to Schefferville and Sept Îles, Que., Wawa, Ont., and Duncan, B.C.

In radio, an important service is performed by low-power relay transmitters (LPRT's) in the more remote areas of Canada. These are small, unmanned radio transmitters developed by CBC engineers to relay radio network service to listeners where reception is inadequate or non-existent and installation of a manned station is impractical. They broadcast on the standard AM band to small audiences at a low per capita cost. There

were 129 LPRT's in operation in 1964-65 and 17 new ones extended radio service to new areas during the year. Eight of these (at Quinan, N.S., Rogersville, N.B., Rivière au Renard, Gagnon, Grande Vallée and Mont Brun, Que., Sturgeon Falls and Elliot Lake, Ont.) are connected to the French radio network, and seven (at Port aux Basques and Woody Point, Nfld., Red Lake, Spanish and Terrace Bay, Ont., Salmo and Fort St. James, B.C.) are connected to the English radio network. Two others (at Labrador City and Wabush, Nfld.) provide bilingual service derived from the French and English radio networks. In addition, network service was extended to the LPRT at Ocean Falls, B.C., previously programmed by off-air reception, and to CFBG, Goose Bay, Nfld. In August 1965, a new 10-kw. French radio network transmitter (CBOF) and associated studios went into service at Ottawa. Prairie listeners received improved service in October when the new 50-kw. radio transmitters at Calgary and Edmonton commenced service, replacing CBX at Lacombe. The Saint John area of New Brunswick also received improved English radio service in October with the opening of CBD, a 10-kw. transmitter at Saint John, controlled from the CBZ studios in Fredericton.

The CBC began FM broadcasting in 1947 with stations in Ottawa, Toronto and Montreal, followed in 1948 with a station in Vancouver and a French-language FM station in Montreal. Bilingual FM network service, with programming separate from AM, began in 1960 on the Toronto, Ottawa and Montreal stations. In 1962 the network was discontinued because of curtailment of operating funds. However, in October 1964, this network service resumed in English and now includes CBU-FM, Vancouver, by means of tape programming. In Montreal, French-language FM programming remains available through CBF-FM, and CBM-FM broadcasts network service in English. The Corporation has applied to the Board of Broadcast Governors for the acquisition of CFMW-FM in Winnipeg, Man., through which programming would become available to some 700,000 people in the Greater Winnipeg area. The lack of suitable frequencies for AM expansion and a strong interest by many listeners in specially designed FM programming indicate an upsurge in FM development.

Northern Service.—Since 1958, the Northern Service has broadcast by shortwave and medium-wave, in two Eskimo dialects and five Indian languages as well as in French and English, to about 75,000 people scattered over approximately 2,000,000 sq. miles. About 75 p.c. of the population is served by the medium-wave community stations which are located at Whitehorse, Y.T., the program centre for the LPRT's of the Yukon network (Watson Lake, Mayo, Elsa, Dawson, Teslin, Haines Junction, Destruction Bay and Beaver Creek in Yukon Territory and Cassiar in British Columbia); Yellowknife, N.W.T., the program centre for the LPRT's of the Mackenzie network (Hay River and Fort Smith, N.W.T., and Uranium City, Sask.); Inuvik, N.W.T., covering the Mackenzie Delta; Churchill, Man.; Goose Bay, Labrador; and Frobisher Bay, N.W.T. The Yukon and Mackenzie networks are connected to the English radio network.

Programs in the Indian and Eskimo languages, originated by local stations, were increased in number and variety and the number of programs in French and Eskimo on the shortwave service was increased. *Indian Magazine*, the first CBC program series devoted exclusively to activities of Canadian Indians, was inaugurated during 1964. Although intended for people of Indian background living in the North, it drew its material from all parts of Canada, co-operating with the National Indian Council, the Indian-Eskimo Association, Indian Friendship Centres in cities across Canada, and federal and provincial government departments dealing with Indian affairs. On shortwave, half an hour each night except Saturday is devoted to Eskimo-language programs produced in Montreal—*Uqausi* (Let's Talk), *Nunassiqmeunut* (Music for the People of the Beautiful Land)

Churchill Calling and *Frobisher Calling*. The personal radio message service for Eskimos hospitalized in Southern Canada was expanded in 1964 to include Eskimos attending vocational and academic schools and living in hostels and private residences. It was also extended to include northerners of Indian and metis backgrounds.

Armed Forces Service.—In 1964-65, the Armed Forces Service continued to provide Canadian servicemen and their dependants stationed abroad with shortwave news, live network coverage of outstanding national events, tape-recorded network shows, television films for showing in recreation centres and mess halls, and concert parties of outstanding Canadian variety artists. About three hours of news, sports and topical events were broadcast daily on shortwave and 70 hours of recorded network programs were shipped to radio stations CAE and CFN in Europe. Network broadcasts of the Stanley Cup playoffs and the Grey Cup game were made available to both stations by transatlantic telephone, thereby creating a simultaneous radio network of over 7,000 miles from Dawson in Yukon Territory to Baden Solingen on the Rhine. Concert parties went to Army and Air Force units in Europe, the Middle East and, for the first time, to Cyprus; similar concerts at Navy, Army and Air Force bases across Canada were recorded for later network broadcast.

A weekly package of CBC television programs was lent to the Armed Forces for distribution among remote bases in the Arctic, the Middle East, Indo-China and the Congo. Tape-recorded network programs were made available to the RCN for use in ships at sea and about 28 half-hour recorded network programs were supplied weekly to 14 RCAF stations on the Pine Tree and Mid-Canada Lines for broadcasting on low-power transmitters.

International Service.—In 1964-65 the International Service marked its 20th anniversary. Throughout this period there have been many changes in the purpose and scope of international broadcasting. The increased popularity of shortwave listening and the growing demand for international exchange of programs fully taxed the facilities of the International Service.

Daily shortwave broadcasts in 11 languages informed listeners of events in Canada and Canadian attitudes toward international events. The Service used English, French, Spanish and Portuguese for transmissions to Western Europe, Africa, Latin America, the Caribbean area, Australia, New Zealand and North America, and Central and Eastern Europe were served by broadcasts in German, Czech, Slovak, Russian, Ukrainian, Polish and Hungarian. New popular programs, such as the Radio-Canada Shortwave Club, and extended programs for philatelists resulted in a marked increase in the mail received by the International Service.

There was a considerable increase in the exchange of transcribed programs during the year. The exchange of transcriptions between International Service and broadcasting organizations of the western world has been well established for some time but in 1964-65 Radio Moscow approached the Service for the first time suggesting more exchanges. As a result, International Service offered Radio Moscow items wherever appropriate, including reports on the tour across Canada by the Russian pianist Sviatoslav Richter, an interview with Glenn Gould, and TV film of the visits to Canada of the Russian Minister of Agriculture and of the Russian hockey team. Also, both music and spoken-word transcriptions in stereophonic sound were offered during the year.

The English, French, Spanish and Portuguese language services produced new series of spoken-word transcriptions which were offered to virtually all radio organizations of the

many countries in their areas—the Commonwealth, Europe, Africa, Latin America and the United States. In return, International Service received a wealth of transcribed material from all parts of the world for use by domestic CBC networks. An unusual feature of the year was the assistance given by the International Service to the Easter Island scientific expedition. A technician was detailed to the expedition with equipment for a daily two-way radio link between Easter Island and Montreal. As there was no other means of communication with the Island, this shortwave link was very important to members of the expedition in communicating with their headquarters at McGill University and with their families.

International Relations.—The CBC in 1964-65 continued activity in the field of international exchange and export sales of programs. Programs such as *The 700 Million*, *The Open Grave*, *The Dark Did Not Conquer*, *Caribou Mystery*, *The Living Sea*, *The Nature of Things*, *Parade*, *Through the Looking Glass*, *Wayne and Shuster*, and several programs in the Festival series were sold to broadcasting organizations in Australia, Germany, Hungary, New Zealand, Sweden, Britain and the United States. Intertel, of which CBC is a founding member, continued production of hour-long documentaries for a world-wide audience of between 40,000,000 and 50,000,000 viewers. Since the founding of the Federation, the CBC has telecast a total of 20 Intertel documentaries.

CBC personnel seconded from their positions in Canada have continued to assist in the development of television and radio broadcasting service in the newly emerging nations of Asia, Africa and the West Indies. Technical and executive staff have been made available to these countries to assess their requirements and advise on the establishment of broadcast service. Much of this work has been undertaken in co-operation with the External Aid Office of the Canadian Government. Trainees have come from Norway, Greece, Pakistan, France, Indonesia, Japan, Burma, Colombia, Sarawak, Morocco, Malaya, Turkey, the West Indies and many other countries for on-the-job training at CBC production points across Canada in various functions applicable to broadcasting—news services, farm and school broadcasts, press relations, financial operations, administration, technical and programming matters, production, audience research and station management.

Finance.—The CBC, being a Crown corporation, is financed through public funds authorized by Parliament and through commercial advertising. In the year ended Mar. 31, 1965, commercial revenue accounted for about 27.5 p.c. of the Corporation's income. It is recognized that such revenue cannot be expected to grow significantly beyond this level, since there are no large untapped sources of advertising revenue available to television and the CBC continues to follow a policy whereby certain programs are not available to sponsorship (including news, talks and public affairs, farm and fisheries broadcasts, school broadcasts, religious and institutional broadcasts) and also deliberately restricts the quantity of commercial messages. The Corporation's efforts to increase commercial revenues are at no time allowed to influence its program decisions.

The following statement of operations shows a 7.1 p.c. increase in expenditures in 1964-65 over the previous year to the amount of \$119,318,000. Increases for the previous four years were: 1963-64, 6.5 p.c.; 1962-63, 0.7 p.c.; 1961-62, 6.6 p.c.; 1960-61, 7.4 p.c. The small increase in 1962-63, as compared with other years, is attributable to the austerity program which caused postponement of planned extensions and improvements to the national broadcasting service. The 1964-65 grant of \$85,900,000 voted by Parliament to discharge the responsibilities of the national broadcasting service was under-expended by \$30,778.

8.—Financial Statement of CBC Operations, Years Ended Mar. 31, 1964 and 1965

Item	1963-64	1964-65
	\$	\$
Expenses—		
Production and Distribution—		
Cost of programs.....	74,387,746	79,618,703
Network distribution.....	10,428,548	10,727,250
Station transmission.....	4,406,649	5,003,930
Payment to private stations.....	4,927,418	4,752,553
Commissions to agencies and networks.....	3,804,462	3,718,955
Emergency broadcasting.....	623,861	869,335
Operational supervision and services.....	9,067,594	10,316,690
Selling and Administration—		
Selling expense.....	1,800,253	1,998,579
Engineering and development.....	1,102,127	1,128,796
Management and central services.....	4,909,778	5,331,629
Interest on loans.....	—	373,960
Totals, Expenses.....	115,458,436	123,840,380
Income—		
Parliamentary grant.....	78,376,828	85,869,222
Advertising revenue (gross).....	32,392,102	32,871,694
Interest on investments.....	240,390	211,584
Miscellaneous.....	377,563	365,669
Totals, Income.....	111,386,883	119,318,169
Depreciation included with total expenses.....	4,071,553	4,522,211
	115,458,436	123,840,380

Statistics of the Broadcasting Industry

Financial and other statistics of the radio and television broadcasting industry are obtained by the Dominion Bureau of Statistics in co-operation with the Board of Broadcast Governors and the Department of Transport; summary figures are given in Table 9 for 1960-63; for 1962 and 1963, figures for the private sectors and the CBC are given separately.

The operating revenue of the broadcasting industry in 1963 amounted to \$136,200,000, an increase of 9.5 p.c. over the previous year. Of the total operating revenue, radio broadcasting accounted for \$60,600,000 or 44.5 p.c. and television broadcasting \$75,600,000 or 55.5 p.c.; in 1962, radio received \$55,900,000 or 45 p.c. and television \$68,500,000 or 55 p.c. The number of private radio and television stations reporting to DBS in 1963 totalled 239 and 63, respectively. Revenue from network and national advertising represented 62 p.c. of the total broadcasting revenue and revenue from local advertising 38 p.c.; network and national advertising, and local advertising increased by 10 p.c. and 16 p.c., respectively, over 1962; other non-broadcasting revenue decreased by 23 p.c.

Operating expenses in 1963 reached a total of \$210,000,000, an increase of 7 p.c. over 1962. The growth of revenues exceeded the growth of expenses and resulted in an operating profit of \$8,800,000 in 1963 compared with an operating profit of \$5,300,000 in 1962. After adjustment on account of other income and expenses and income taxes, the final net profit of the private sector of the broadcasting industry for 1963 was \$5,500,000 compared with a profit of \$1,800,000 in 1962. There are no CBC profits or losses in the figure of net profit because any unexpended balance of the parliamentary grant is treated as an account due to the Government of Canada.

9.—Revenue, Expense and Employee Statistics of the Broadcasting Industry, 1960-63

Item	1960	1961	1962		1963	
			Private Stations	CBC	Private Stations	CBC
	\$	\$	\$	\$	\$	\$
Operating Revenue and Grants						
Broadcasting revenue from network and local advertising.....	100,241,000	103,909,686	92,834,154	22,640,000	105,697,719	23,661,000
Non-broadcasting revenue.....	4,142,000	6,679,486	8,349,479	556,000	6,075,736	785,000
Grants.....	59,289,000	70,252,273	—	76,964,000 ¹	—	82,449,000 ¹
Totals, Operating Revenue and Grants.....	163,672,000	180,841,445	101,183,633	100,160,000	111,773,455	106,895,000
Operating Expenses²						
Representative agency commissions.....	3,880,000	4,303,323	5,432,631	3,000	5,856,156	26,000
Interest charges.....	..	1,902,593	2,736,375	—	3,111,740	3,000
Depreciation and amortization of leasehold improvements.....	..	6,218,805	7,102,559	4,309,000	7,063,202	4,072,000
Rent, repairs and maintenance, insurance, property taxes, fuel and electricity.....	..	12,595,449	7,972,749	5,078,000	8,963,678	5,866,000
Salaries and wages.....	65,519,000	74,970,241	40,055,064	42,081,000	43,085,037	44,421,000
Staff benefits.....	..	3,539,240	1,181,567	3,009,000	1,308,215	3,193,000
Artists' and other talent fees.....	16,422,000	18,650,171	4,748,818	13,562,000	4,299,224	13,738,000
Performing rights.....	..	5,647,731	1,959,741	3,746,000	2,211,263	5,355,000
Telephone and telegraph and outside services.....	..	16,511,189	6,333,070	11,111,000	6,512,236	11,199,000
Films, tapes, recordings—rental and purchased.....	..	17,617,993	6,377,718	11,403,000	7,552,277	11,260,000
Advertising, promotion and travel.....	..	6,505,680	5,784,863	1,760,000	6,326,607	2,015,000
Taxes and licences (other than income or property).....	..	1,293,566	1,368,859	—	1,604,131	—
Office and other operating expenses.....	71,775,000	11,312,992	4,784,697	4,098,000	5,119,617	5,747,000
Totals, Operating Expenses.....	157,596,000	181,068,973	95,838,711	100,160,000	103,013,383	106,895,000
Net operating income.....	+6,076,000	—227,528	+5,344,922	—	+8,760,072	—
Net of other income and other expenses.....	+3,790,000	+1,057,260	+288,151	—	+1,381,192	—
Provision for income taxes.....	4,858,000	3,504,289	3,878,735	—	4,678,968	—
Net income after taxes.....	+5,008,000	—2,674,557	+1,754,338	—	+5,462,296	—
Average monthly number of employees.....	13,885	15,514	8,175	7,592	8,395	7,765

¹ The CBC charges its operations with depreciation but deducts the charge on its published statements; the charge so made has been added to the parliamentary grant.

² Do not include advertising agency commissions, estimated at \$11,761,211 in 1962 and \$12,986,238 in 1963.

Section 2.—Postal Service

The basic tasks of the Canadian Postal Service are to receive, convey and deliver postal matter with security and dispatch. In discharging these duties it maintains post offices and utilizes air, railway, land and water transportation facilities. Associated functions include the sale of stamps and other articles of postage, the registration of letters and other mail for dispatch, the insuring of parcels, the accounting for COD articles, and the transaction of money order and Post Office Savings Bank business. Because of its widespread facilities, it has been found expedient for the Post Office to assist other government departments in the performance of certain tasks including the sale of unemployment insurance stamps, the collection of government annuity payments, the distribution of income tax forms and Civil Service employment application forms, and the display of government posters. Post offices are established wherever the population warrants. Those in rural

areas and small urban centres transact all of the functions of the city office. In larger urban areas postal stations and sub-post offices have full functions similar to the main post office, including a general delivery service, lock-box delivery and letter-carrier delivery.

The operating service of the Post Office Department is organized into 14 Districts, each under a district director. These district directors and the Postmasters, Toronto and Montreal, report directly to the Assistant Deputy Postmaster General. The Assistant Deputy Postmaster General has the responsibility of conducting the normal field operations of the Postal Service. The operating and support functions required in the provision of postal service to the public are the responsibility of the local postmasters who receive technical and administrative assistance from district offices at strategic points.

Postal service is provided in Canada from Newfoundland to the west coast of Vancouver Island and from Pelee Island, Ont., (the most southerly inhabited point of Canada) to settlements and missions far into the Arctic. Canada's airmail system provides several transcontinental flights daily, intersected by branch and connecting lines radiating to every quarter and linking up with the United States airmail system. All first-class domestic mail up to and including eight ounces in weight is carried by air between one Canadian point and another, whenever delivery can thus be expedited. Air stage service provides the only means of communication for many areas in the hinterland. There are approximately 46,000 miles of airmail and air stage routes. However, the railways are still the principal means of distant mail transport.

At Mar. 31, 1964 there were 11,260 post offices in operation and letter-carrier delivery, performed in 188 urban centres, employed over 9,000 uniformed carriers. Rural mail routes are generally circular in pattern and average about 26 miles in length. Some 1,319 side services transport mail between post offices, railway stations, steamer wharves and airports, and 1,878 stage services convey mail to and from post offices not located on railway lines. Transportation of mail by motor vehicle on highways is expanding and more than 430 such services were in operation in 1964, many of them replacing or reducing conveyance by rail. In 1964 there were 1,017 city mail services transporting mail to and from post offices, postal stations and sub-post offices, collecting mail from street letter-boxes and delivering parcel post. Over 50,000,000 miles are travelled annually on about 9,000 land mail services; both land mail and coastal mail services are performed under contract.

The larger post offices in Canada may be described as intricate industrial plants where mail is unloaded, cancelled, transported and shipped by semi-automatic means. Conveyor belts, automatic chutes and other devices increase output of mail matter without increasing staff and all the larger offices are provided with the latest mechanical equipment. In some areas householder mail is carried by mailmobile. In most cities, postage stamps may be obtained at any time from automatic vending machines, and a curbside mail receptacle in which patrons may deposit mail without leaving their automobiles is coming into use. Electronic equipment checks money orders and accounts for the \$925,000,000 annually that they represent.

10.—Post Offices in Operation, by Province, as at Mar. 31, 1963 and 1964

Province	1963	1964	Province or Territory	1963	1964
	No.	No.		No.	No.
Newfoundland.....	661	673	Saskatchewan.....	1,248	1,205
Prince Edward Island.....	107	106	Alberta.....	1,062	1,048
Nova Scotia.....	830	803	British Columbia.....	906	901
New Brunswick.....	536	530	Yukon Territory.....	20	19
Quebec.....	2,414	2,423	Northwest Territories.....	43	42
Ontario.....	2,704	2,709			
Manitoba.....	805	801	Canada.....	11,336	11,260

11.—Revenue and Expenditure of the Post Office Department, Years Ended Mar. 31, 1960-64

NOTE.—Figures from 1868 will be found in the corresponding table of previous Year Books beginning with the 1911 edition.

Year	Gross Revenue	Net Revenue ¹	Expenditure ²	Surplus (+) or Deficit (—)
	\$	\$	\$	\$
1960.....	193,659,715	167,629,053	165,792,339	+1,836,714
1961.....	202,003,790	173,645,658	178,371,716	—4,726,058
1962.....	213,517,994	183,678,936	185,019,700	—1,340,764
1963.....	222,358,848	192,830,859	189,344,410	+3,486,449
1964.....	235,807,940	200,774,264	206,900,000	—37,507,200 ³

¹ Gross revenue less commissions and allowances to postmasters and other small items.
of semi-staff and staff post offices.

² Excludes rental

³ In accordance with new accounting practice.

The gross revenue receipts shown in Table 11 are received mainly from postage, either in the form of postage stamps and stamped stationery, or postage meter and postage register machine impressions. Some postage is also paid in cash without stamps, stamped stationery or meter and register impressions. The gross value of the postage stamps and stamped stationery sold during 1963-64 was \$94,412,195, and receipts from postage meter or postage register impressions and postage paid in cash by other means amounted to \$124,833,831.

In the year ended Mar. 31, 1964, post office money orders, issued for any amount not exceeding \$100 and payable in almost any country of the world, were sold at more than 9,013 post offices and money orders payable in Canada only, for amounts not exceeding \$15.99, were sold at some 1,677 additional post offices. Table 12 shows the amount of money order business conducted by the Postal Service in recent years.

12.—Operations of the Money Order System, Years Ended Mar. 31, 1960-64

Year	Money Order Offices in Canada	Money Orders Issued in Canada	Value of Orders Issued in Canada	Value Payable in—		Value of Orders Issued in Other Countries, Payable in Canada
				Canada	Other Countries	
	No.	No.	\$	\$	\$	\$
1960.....	10,778	54,953,087	868,669,133	840,584,556	28,084,576	5,250,922
1961.....	11,093	55,939,421	886,976,976	858,278,412	28,698,563	5,505,224
1962.....	10,708	56,282,265	893,512,291	867,182,785	26,329,506	5,940,795
1963.....	10,679	55,448,076	898,164,577	874,660,765	23,503,811	6,885,116
1964.....	10,690	56,544,267	927,750,738	904,166,425	23,584,313	7,681,041

A statement on the financial business of the Post Office Savings Bank will be found in Chapter XXV on Banking, Other Commercial Finance and Insurance.

Section 3.—The Press*

Daily newspapers published in Canada numbered 119 in 1964, counting morning and evening editions separately. English and French dailies had an aggregate reported circulation of nearly 4,385,000 about 80 p.c. in English and 20 p.c. in French. Twelve of those with circulations in excess of 100,000 accounted for over 51 p.c. of the circulation.

*An article in the 1957-58 Year Book traces developments in Canadian journalism from their beginnings in 1752 to (circa) 1900. A second article appearing in the 1959 edition brings that account up to the date of writing (1958). The complete presentation is available in reprint form from the Dominion Bureau of Statistics.

French dailies, as would be expected, have their widest circulation in Quebec where 11 of the 13 in existence in 1964 were published. Some of the largest of these papers have been established in that province for over 60 years. Weekly newspapers serve more people in rural communities than do the dailies. They cater to local interests and exercise an important influence in the areas they serve.

The Canadian Press, a co-operative organization owned and operated by Canada's daily newspapers, provides its 100 members with world and Canadian news and news photographs, mostly by means of teletype and wirephoto transmission. It also serves weekly newspapers and radio and television stations. It is, in effect, a partnership through which each member newspaper provides its fellow members with the news of its particular area and through which the general news of the world is brought to Canada. Cost of editing and transmission is divided among members according to the population of the cities in which they publish. CP gets world news from Reuters, the British agency, and from the Associated Press, the United States co-operative, and these agencies have reciprocal arrangements with CP for their coverage of Canada.

The United Press International of Canada is a limited company which is associated with the United Press International World Service of which it is an affiliate. From its headquarters in Montreal, it provides Canadian and international news and pictures to over 90 subscribers in Canada as well as being the outlet of Canadian news and pictures for world distribution through United Press International facilities. Agence France Presse maintains offices in Montreal and Ottawa and certain foreign newspapers have agencies in Ottawa to interpret Canadian news for their readers.

Press Statistics.—The following tables are based on data estimated from *Canadian Advertising*. Circulation figures are given for daily English-language and French-language newspapers only. Such circulation figures are relatively easy to obtain because, in their own interest, newspapers qualify for and subscribe to the Audit Bureau of Circulation; for these, ABC 'net paid' figures have been used. On the other hand, circulation data for foreign-language newspapers, weekly newspapers, weekend newspapers and magazines are incomplete and therefore not usable.

13.—Estimated Numbers and Circulations of reporting English-Language, French-Language and Foreign-Language Newspapers, by Province, 1963 and 1964

Province or Territory	1963				1964			
	Daily		Weekly ¹	Weekend	Daily		Weekly ¹	Weekend
	No.	Circulation ²	No.	No.	No.	Circulation ²	No.	No.
ENGLISH-LANGUAGE NEWSPAPERS								
Newfoundland.....	3	27,885	4	1	3	29,949	4	1
Prince Edward Island.....	3	27,840	—	—	3	28,092	—	—
Nova Scotia.....	6	156,483	29	—	6	155,177	32	—
New Brunswick.....	5	87,727	13	—	5	89,733	15	—
Quebec.....	4	347,234	21	1	4	348,658	19	1
Ontario.....	47	1,720,293	236	6	47	1,728,395	245	5
Manitoba.....	7	226,477	67	—	7	219,741	65	—
Saskatchewan.....	4	116,392	119	—	4	120,666	119	—
Alberta.....	7	277,755	90	1	7	279,850	89	1
British Columbia.....	14	464,190	89	—	15	519,385	91	—
Yukon and Northwest Territories.....	—	—	3	—	—	—	3	—
Totals.....	100	3,452,276	671	9	101	3,519,646	682	8

For footnotes, see end of table, p. 852.

13.—Estimated Numbers and Circulations of reporting English-Language, French-Language and Foreign-Language Newspapers, by Province, 1963 and 1964—concluded

Province	1963				1964			
	Daily		Weekly ¹	Weekend	Daily		Weekly ¹	Weekend
	No.	Circulation ²	No.	No.	No.	Circulation ²	No.	No.
FRENCH-LANGUAGE NEWSPAPERS³								
Nova Scotia.....	—	—	1	—	—	—	1	—
New Brunswick.....	1	9,830	3	—	1	10,057	3	—
Quebec.....	9	714,597	168	14	11	820,611	163	16
Ontario.....	1	36,150	7	—	1	34,674	6	—
Manitoba.....	—	—	1	—	—	—	1	—
Saskatchewan.....	—	—	3	—	—	—	6	—
Alberta.....	—	—	1	—	—	—	1	—
Totals.....	11	760,577	184	14	13	865,342	181	16
FOREIGN-LANGUAGE NEWSPAPERS⁴								
Quebec.....	—	—	10	—	—	—	12	—
Ontario.....	2	..	42	—	2	..	41	—
Manitoba.....	—	—	15	—	—	—	15	—
Alberta.....	—	—	2	—	—	—	2	—
British Columbia.....	3	..	2	—	3	..	2	—
Totals.....	5	..	71	—	5	..	72	—

¹ Includes semi-weeklies, tri-weeklies and bi-weeklies.

² Circulation not reported for all newspapers.

³ Includes bilinguals.

⁴ All daily and weekly foreign-language publications given here are considered to be newspapers.

14.—Estimated Numbers and Circulations of reporting English-Language and French-Language Newspapers Published in Urban Centres of Over 30,000 Population, 1963 and 1964.

NOTE.—Figures from 1945 will be found in the corresponding table of previous Year Books beginning with the 1947 edition.

Urban Centre	Households (Census 1961)	1963		1964			
		Daily		Weekly	Daily		Weekly
		No.	No.	Circulation	No.	No.	Circulation	No.
ENGLISH-LANGUAGE NEWSPAPERS							
Belleville, Ont.....	8,563	1	13,455	—	1	13,872	—
Brantford, Ont.....	15,914	1	22,329	—	1	22,837	—
Burlington, Ont.....	12,299	—	—	1	—	—	1
Calgary, Alta.....	71,586	2	116,886	1	2	114,341	1
Cornwall, Ont.....	10,753	1	13,332	—	1	13,500	—
Dartmouth, N.S.....	10,945	—	—	1	—	—	1
Edmonton, Alta.....	76,275	1	121,528	1	1	126,107	1
Fort William, Ont.....	11,695	1	15,873	—	1	15,960	—
Granby, Que.....	7,478	—	—	1	—	—	1
Guelph, Ont.....	10,773	2	17,127	—	2	18,253	—
Halifax, N.S.....	21,501	2	114,226	—	2	112,196	1

14.—Estimated Numbers and Circulations of reporting English-Language and French-Language Newspapers Published in Urban Centres of Over 30,000 Population, 1963 and 1964—concluded.

Urban Centre	Households (Census 1961)	1963			1964		
		Daily		Weekly	Daily		Weekly
		No.	No.	Circulation	No.	No.	Circulation	No.
ENGLISH-LANGUAGE NEWSPAPERS—concluded							
Hamilton, Ont.	73,829	1	111,119	—	1	114,193	—
Kingston, Ont.	13,931	1	23,868	1 ¹	1	23,555	1 ¹
Kitchener, Ont.	20,600	1	39,659	—	1	40,942	—
Lethbridge, Alta.	10,013	1	18,546	—	1	18,661	—
London, Ont.	47,498	2	115,153	—	2	117,527	—
Moncton, N.B.	10,529	2	27,280	—	2	27,867	—
Montreal, Que.	330,023	2	332,420	2 ²	2	334,419	2 ²
Moose Jaw, Sask.	9,562	1	8,452	—	1	8,702	—
New Westminster, B.C.	9,218	1	18,246	1	1	18,615	—
Oshawa, Ont.	17,133	1	18,609	—	1	19,897	—
Ottawa, Ont.	70,114	2	147,628	4	2	141,990	2
Peterborough, Ont.	12,853	1	23,516	1	1	23,632	1
Port Arthur, Ont.	11,609	1	14,849	—	1	14,890	—
Quebec, Que.	42,126	1	5,751	—	1	5,392	—
Regina, Sask.	30,125	1	58,504	—	1	61,086	—
St. Catharines, Ont.	23,287	1	28,242	—	1	29,185	—
St. James, Man.	9,076	—	—	1	—	—	1
St. John's, Nfld.	12,971	2	21,587	1 ¹	2	23,137	1 ¹
Saint John, N.B.	14,423	2	47,208	1	2	47,930	1
Sarnia, Ont.	13,710	1	16,462	1	1	16,788	1
Saskatoon, Sask.	25,912	1	42,172	—	1	43,398	—
Sault Ste. Marie, Ont.	11,054	1	18,359	—	1	18,822	—
Shawinigan, Que.	7,232	—	—	1	—	—	1
Sherbrooke, Que.	15,775	1	9,063	1	1	8,847	1
Sudbury, Ont.	19,526	1	30,107	—	1	30,278	—
Sydney, N.S.	7,500	1	26,537	1	1	27,111	1
Toronto, Ont.	172,864	4	783,250	10 ³	4	779,641	15 ⁴
Trois-Rivières, Que.	12,372	—	—	1	—	—	1
Vancouver, B.C.	118,405	2	337,118	4	3	386,968	4
Victoria, B.C.	18,475	2	57,515	3	2	59,980	3
Welland, Ont.	9,428	1	17,267	—	1	17,801	—
Windsor, Ont.	33,060	1	77,533	—	1	79,700	1
Winnipeg, Man.	74,126	2	205,047	2	2	201,461	2
FRENCH-LANGUAGE NEWSPAPERS							
Chicoutimi, Que.	5,786	—	—	3	—	—	3 ²
Chomedey, Que.	6,995	—	—	2 ⁵	—	—	2 ⁶
Cornwall, Ont.	10,753	—	—	1	—	—	1
Edmonton, Alta.	76,275	—	—	1	—	—	1
Granby, Que.	7,478	1	11,156	1	1	9,665	1
Hull, Que.	13,301	—	—	3 ²	—	—	2 ²
Jacques Cartier, Que.	8,595	—	—	—	—	—	1 ⁶
Lachine, Que.	10,058	—	—	1 ⁶	—	—	1 ⁶
LaSalle, Que.	8,128	—	—	1 ⁶	—	—	1 ⁶
London, Ont.	47,498	—	—	1 ⁶	—	—	1 ⁶
Moncton, N.B.	10,529	1	9,830	—	1	10,057	—
Montreal, Que.	330,023	3	411,206	25 ⁷	5	539,727	26 ⁸
Ottawa, Ont.	70,114	1	36,150	—	1	34,674	—
Quebec, Que.	42,126	3	204,026	3 ²	3	187,050	3 ²
St. Boniface, Man.	9,561	—	—	1	—	—	1
St. Laurent, Que.	12,306	—	—	1	—	—	1
Shawinigan, Que.	7,232	—	—	5	—	—	5
Sherbrooke, Que.	15,775	1	47,273	1	1	42,675	1
Sudbury, Ont.	19,526	—	—	1	—	—	2
Toronto, Ont.	172,864	—	—	1	—	—	—
Trois-Rivières, Que.	12,372	1	40,936	4	1	41,494	5

¹ Weekend newspaper.² Includes one weekend newspaper.³ Includes five weekend newspapers.⁴ Includes four weekend newspapers.⁵ Includes one bilingual.⁶ Bilingual.⁷ Includes 13 bi-

lingual and 12 weekend newspapers.

⁸ Includes 12 bilingual and 13 weekend newspapers.

15.—Estimated Numbers of Foreign-Language Publications, 1963 and 1964

Language	1963	1964	Language	1963	1964
	No.	No.		No.	No.
Byelorussian.....	1	1	Lithuanian.....	3	3
Chinese.....	4	4	Macedonian.....	1	1
Croat.....	3	3	Maltese.....	1	1
Czech.....	2	2	Norwegian.....	1	1
Danish.....	2	2	Polish.....	3	3
Dutch.....	8	8	Portuguese.....	3	3
Estonian.....	2	2	Russian.....	1	1
Finnish.....	2	2	Serbian.....	3	3
German.....	9	9	Slovak.....	2	2
Greek.....	2	4	Slovenian.....	1	1
Hungarian.....	8	8	Swedish.....	3	3
Icelandic.....	1	1	Ukrainian.....	18	18
Italian.....	11	11	Yiddish.....	4	4
Japanese.....	2	2			
Latvian.....	1	1	Totals.....	102	104

16.—Estimated Numbers of Magazines and Related Publications, by Broad Classifications, 1963 and 1964

Classification	1963	1964	Classification	1963	1964
	No.	No.		No.	No.
Agricultural and rural.....	57	58	Religious.....	37	37
Arts, crafts and professions.....	40	42	Services and directories.....	82	89
Construction.....	20	23	Sports and entertainment.....	69	72
Educational.....	99	105	Trade, industry and related publications.....	197	197
Finance and insurance.....	13	13	Transportation and travel.....	42	41
Government and government services.....	29	28	Miscellaneous.....	18	19
Home, social and welfare.....	48	44			
Labour.....	14	14	Totals.....	805	824
Pharmaceutical and medical.....	40	42			

Revenue from Printing and Publishing.—One of the industrial groups for which information is collected by the DBS in its annual Census of Manufactures is the printing, publishing and allied industries group which includes establishments engaged primarily in the publishing and printing of newspapers, magazines, periodicals, books, almanacs, maps, guides and the like, as well as establishments printing such publications for publishers, publishing firms that do no printing, and engraving, stereotyping and allied industries. Of interest in connection with press statistics is the amount of revenue received by these industries from advertising and from subscriptions or sales, which is given for the years 1962 and 1963 in Table 17. Additional data on manufacturing activity of this industrial group are included in Chapter XVI on Manufactures.

17.—Revenue from Advertising and from Subscriptions or Sales of Newspapers, Periodicals and Books, 1962 and 1963

Classes	1962			1963		
	Net Revenue ¹ from—			Net Revenue ¹ from—		
	Adver- tising	Subscrip- tions and Sales	Total	Adver- tising	Subscrip- tions and Sales	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Newspapers and Periodicals—						
Newspapers, daily.....	184,054	64,735	248,789	187,619	67,460	255,079
Retail.....	91,294	...	...	96,419	...	...
Classified.....	40,439	...	...	40,074	...	...
National.....	52,321	...	...	51,126	...	...
Newspapers, national weekend.....	17,018	9,283	26,301	17,039	9,466	26,506
Local.....	2,144	...	...	2,412	...	...
National.....	14,874	...	...	14,627	...	...
Newspapers, weekly, semi-weekly, tri-weekly, etc.....	24,908	5,931	30,839	24,879	5,740	30,618
Local.....	19,346	...	...	19,215	...	...
National.....	5,562	...	...	5,664	...	...
Controlled distribution weekly newspapers....	773	16	789	697	22	719
Local.....	729	...	...	635	...	...
National.....	44	...	...	62	...	...
Magazines of general circulation.....	17,875	7,614	25,489	17,320	8,122	25,442
Telephone and city directories.....	32,041	1,800	33,842	32,906	1,876	34,782
Trade, technical, professional and financial pub- lications.....	24,547	5,567	30,114	24,933	5,561	30,494
Agricultural publications.....	5,529	980	6,509	5,617	942	6,559
Religious publications.....	344	4,083	4,427	338	4,046	4,384
School and collegiate publications.....	41	1,170	1,212	44	1,138	1,182
Fraternal publications.....	348	382	730	402	402	804
Juvenile publications.....	25	301	326	29	480	508
All other periodicals.....	1,407	1,567	2,975	1,485	1,838	3,323
Totals, Newspapers and Periodicals.....	308,912	103,430	412,342	313,307	107,092	420,399
Books—						
Books published and printed.....	...	9,763	9,763	...	10,511	10,511
Books published only.....	...	16,027	16,027	...	17,626	17,626
Totals, Books.....	...	25,790	25,790	...	28,137	28,137

¹ Net revenue from advertising excludes commissions paid to recognized advertising agencies and all cash discounts; net revenue from subscriptions and sales excludes commissions paid to indirectly employed sales agents who are not regular employees.

CHAPTER XXI.—DOMESTIC TRADE AND PRICES

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

PART I.—THE MOVEMENT AND MARKETING OF COMMODITIES

Domestic trade is broad and complicated; it encompasses all values added to commodities traded, provincially and interprovincially, by agencies and services connected with the storage, distribution and sale of goods, such as railways, steamships, warehouses, wholesale and retail stores, financial institutions, etc. Taken in a wide sense, it embraces various professional and personal services, including amusement services such as theatres and sports. Only certain phases of this broad field are covered here and, wherever possible, cross references are given to related material appearing in other Chapters. The arrangement of material in a volume such as the Year Book is governed by the necessity of interpretation from various angles. The Index will be found useful in this respect.

Section 1.—Merchandising and Service Establishments*

The surveys of merchandising and service establishments centre around a census of such business establishments. The first census of this kind related to business transacted for the year 1930 and similar censuses were taken for 1941, 1951 and 1961. It should be noted that a wider range of data was available from the 1961 than from the previous censuses. Gross margin information was collected from retail stores and wholesalers; operating expense figures were collected from wholesalers and service businesses; and more

* Prepared in the Merchandising and Services Division, Dominion Bureau of Statistics.

information was sought about the operating characteristics of retailers and wholesalers. Detailed results may be obtained from the census reports.* In the 1963-64 Year Book (pp. 847-848) summary data were given for retail trade and in the 1965 Year Book (pp. 853-858) for all three trade groups—wholesale, retail and service. Certain elaborative data for these groups are given in Subsection 1 following.

The next census of merchandising and service establishments will be for 1966 and subsequent censuses will be quinquennial rather than decennial. Less detail will be collected in these censuses than previously and there will be more emphasis on sample surveys during the intercensal period for the collection of detail such as commodity content of sales of retailers, gross margin data and the analysis of sales by type of buyer. Each census forms a new base for the intercensal monthly, quarterly and annual surveys, which are sample surveys for some businesses and full coverage for others. Current information available on the distributive trades, given in Subsections 2 and 3, continues to project the 1951 base and estimates for years prior to 1951 have been revised in accordance with that base. Data related to the 1961 base will be available early in 1966.

Subsection 1.—1961 Census of Merchandising and Service Establishments

Wholesale Trade.—Results of the 1961 census of wholesale trade are summarized in Tables 1 and 2. The former gives the number of business locations, sales, inventory, employment and payroll of wholesale trade establishments, by province; the latter gives the same information for wholesale trade locations classified according to major type of operation and kind-of-business group.

* Vol. VI (Pt. 1) Census of Merchandising: Retail Trade (Series 6.1). Vol. VI (Pt. 2) Census of Merchandising: Wholesale Trade; Services (Series 6.2).

1.—Summary Statistics of Wholesale Trade, by Province, Census 1961

Province or Territory	Locations	Sales	Year-End Inventory	Paid Employees	
				Last Week of November	Payroll for Year
	No.	\$'000	\$'000	No.	\$'000
Newfoundland.....	447	239,696	33,870	3,876	13,560
Prince Edward Island.....	208	66,683	7,635	1,298	3,081
Nova Scotia.....	894	419,742	42,779	7,444	27,442
New Brunswick.....	709	303,940	34,094	5,249	17,276
Quebec.....	7,094	4,475,095	434,374	60,698	254,756
Ontario.....	10,105	6,126,189	641,749	90,346	396,006
Manitoba.....	2,166	3,499,122	545,402	16,161	66,213
Saskatchewan.....	2,646	802,905	93,018	10,547	40,404
Alberta.....	3,332	1,450,855	165,654	19,876	81,066
British Columbia.....	3,222	2,057,843	161,493	24,414	107,313
Yukon and Northwest Territories.....	32	10,677	1,599	124	682
Canada.....	30,855	19,452,747	2,161,667	240,033	997,799

2.—Summary Statistics of Wholesale Trade, by Type of Operation and Kind of Business, Census 1961

Type of Operation and Kind of Business	Locations	Sales	Year-End Inventory	Paid Employees	
				Last Week of November	Payroll for Year
	No.	\$'000	\$'000	No.	\$'000
Co-operative Marketing Associations and Other Dealers in Primary Products.....	1,277	1,780,412	424,881	10,898	29,576
Farm products (raw materials).....	372	1,423,158	403,336	2,467	7,723
Farm supplies.....	150	54,919	6,633	1,030	3,490
Food products (except groceries) and tobacco.....	675	270,934	11,926	6,846	17,278
Forest products (except lumber).....	80	31,401	2,986	555	1,085
Wholesale Merchants.....	22,434	11,219,159	1,458,265	189,237	789,321
Amusement, sporting and photographic goods.....	340	1	1	1	1
Automotive.....	1,913	716,199	139,585	19,798	82,472
Beer, wine and distilled spirits.....	128	131,461	2,937	1,638	6,860
Chemicals, drugs and allied products.....	562	403,171	44,791	7,266	30,297
Coal and coke.....	104	71,252	10,470	688	3,271
Dry goods and apparel.....	1,058	454,760	74,575	7,546	33,250
Electrical goods.....	893	426,437	68,731	9,217	42,558
Farm products (raw materials).....	432	1,228,427	70,663	2,178	8,641
Farm supplies.....	977	222,697	18,914	3,896	12,393
Food products (except groceries) and tobacco.....	1,837	1,296,311	65,187	15,464	57,676
Forest products (except lumber).....	63	14,079	865	253	784
Furniture and house furnishings.....	512	204,004	42,795	4,289	20,392
General merchandise.....	178	90,528	14,727	2,145	7,879
Groceries and food specialties.....	819	1,555,308	115,454	14,021	53,359
Hardware.....	662	422,554	91,055	11,468	44,370
Jewellery.....	225	39,762	11,942	1,057	4,372
Leather and leather goods.....	101	22,145	3,867	424	1,753
Lumber and building materials (other than metal).....	3,701	1,161,032	172,505	27,210	108,895
Machinery, equipment and supplies.....	5,246	1,501,168	334,700	34,633	159,249
Metals and metal work.....	410	355,230	59,861	4,664	22,220
Paper and paper products.....	468	200,212	23,584	4,905	20,544
Petroleum and petroleum products.....	24	1	1	1	1
Plumbing, refrigeration and heating equipment and supplies.....	475	222,150	32,443	4,099	19,601
Waste materials (incl. scrap metal).....	579	1	1	1	1
Other kinds of business.....	726	170,880	22,368	5,352	20,265
Agents and Brokers.....	2,042	2,984,219	14,183	7,191	31,745
Amusement, sporting and photographic goods.....	36	1	1	1	1
Automotive.....	39	36,454	517	208	915
Beer, wine and distilled spirits.....	23	1	1	1	1
Chemicals, drugs and allied products.....	35	18,408	220	151	646
Coal and coke.....	4	7,251	—	9	45
Dry goods and apparel.....	609	335,333	1,517	926	5,135
Electrical goods.....	86	57,177	574	345	1,849
Farm products (raw materials).....	159	1,507,023	505	1,809	3,968
Farm supplies.....	25	3,467	61	23	40
Food products (except groceries) and tobacco.....	116	246,429	1,461	503	2,856
Forest products (except lumber).....	14	12,188	6	48	205
Furniture and house furnishings.....	97	1	1	1	1
General merchandise.....	11	3,939	53	21	81
Groceries and food specialties.....	147	211,125	2,005	746	3,563
Hardware.....	71	32,867	311	205	935
Jewellery.....	15	2,945	56	16	78
Leather and leather goods.....	17	8,216	227	30	165
Lumber and building materials (other than metal).....	64	51,510	919	281	1,412
Machinery, equipment and supplies.....	220	88,283	2,759	700	3,588
Metals and metal work.....	45	193,807	574	206	1,352
Paper and paper products.....	28	21,477	173	83	354
Petroleum and petroleum products.....	1	1	1	1	1
Plumbing, refrigeration and heating equipment and supplies.....	60	28,231	175	170	951
Waste materials (incl. scrap metal).....	2	1	1	1	1
Other kinds of business.....	118	31,202	1,125	297	1,178
Manufacturers' Sales Branches.....	767	1,401,460	118,755	16,773	80,429
Amusement, sporting and photographic goods.....	2	1	1	1	1
Automotive.....	94	109,732	10,282	2,102	9,891
Beer, wine and distilled spirits.....	1	1	1	1	1

¹ Figures withheld to avoid disclosure of individual operations.

2.—Summary Statistics of Wholesale Trade, by Type of Operation and Kind of Business, Census 1961—concluded

Type of Operation and Kind of Business	Locations	Sales	Year-End Inventory	Paid Employees	
				Last Week of November	Payroll for Year
	No.	\$'000	\$'000	No.	\$'000
Manufacturers' Sales Branches—concluded					
Chemicals, drugs and allied products.....	13	9,745	1,306	170	837
Dry goods and apparel.....	22	25,022	2,515	494	1,859
Electrical goods.....	62	140,507	11,376	1,660	8,218
Farm products (raw materials).....	11	88,318	9,809	153	725
Farm supplies.....	34	12,714	1,141	151	581
Food products (except groceries) and tobacco.....	51	155,828	4,362	1,353	5,363
Forest products (except lumber).....	3	13,495	1,306	74	2,919
Furniture and house furnishings.....	2			1	1
Groceries and food specialties.....	56	120,021	4,056	1,658	7,421
Hardware.....	6	5,441	1,476	127	560
Lumber and building materials (other than metal).....	128	195,155	16,206	2,528	10,770
Machinery, equipment and supplies.....	135	215,005	30,469	2,849	15,297
Metals and metal work.....	22	23,396	1,360	203	968
Paper and paper products.....	58	155,772	8,192	1,338	6,093
Plumbing, refrigeration and heating equipment and supplies.....	63	113,080	15,284	1,595	7,087
Other kinds of business.....	4	1,796	165	23	98
Petroleum Bulk Tank Plants and Truck Distributors.....	4,335	2,067,497	145,584	15,934	66,727
Totals, All Locations.....	30,855	19,452,747	2,161,667	240,033	997,799

¹ Figures withheld to avoid disclosure of individual operations.

Retail Trade.—Summary information from the 1961 census of retail trade is presented in Tables 3 and 4. Table 3 gives the number of stores, sales, inventory, employment and payroll, by province, and Table 4 gives the percentage distribution of total retail sales in each province by main commodity group. Retail sales are usually presented by kind of business, i.e., grocery stores, department stores, etc., but the classification by commodity group gives estimated sales of commodities regardless of types of store in which they are sold. The 1965 Year Book, at pp. 855-856, gives retail trade locations and sales by kind of business, and locations and sales in metropolitan areas, major urban areas and other urban centres with 30,000 or more population.

3.—Summary Statistics of Retail Trade, by Province, Census 1961

Province or Territory	Stores	Sales	Year-End Inventory	Paid Employees	
				Last Week of November	Payroll for Year
	No.	\$'000	\$'000	No.	\$'000
Newfoundland.....	4,747	285,568	49,948	10,609	23,703
Prince Edward Island.....	867	78,801	10,678	2,097	5,770
Nova Scotia.....	6,523	580,335	73,194	22,402	51,140
New Brunswick.....	6,215	435,806	55,350	15,551	36,672
Quebec.....	45,273	4,107,952	532,830	143,188	368,162
Ontario.....	52,157	6,206,685	733,955	233,563	621,046
Manitoba.....	6,575	766,711	100,022	29,815	79,494
Saskatchewan.....	7,591	734,492	118,265	24,087	65,941
Alberta.....	9,902	1,272,395	177,621	45,815	126,686
British Columbia.....	13,558	1,575,161	212,435	58,918	173,859
Yukon and Northwest Territories.....	212	29,044	7,600	733	2,519
Canada.....	152,620	16,072,950	2,071,898	587,378	1,554,992

Commodity	New-found-land	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Food and kindred products.....	33.4	27.4	27.8	25.9	27.1	23.7
Fresh fruits and vegetables.....	8.5	2.3	2.8	2.5	3.1	2.8
Fresh, cooked and cured meats (incl. poultry).....	5.1	4.6	5.7	5.0	8.0	6.5
Canned foods.....	8.6	6.6	6.3	6.4	6.3	3.6
All other food products.....	16.2	14.9	13.0	12.0	9.7	10.8
Automotive and related commodities.....	20.2	28.0	26.0	27.9	23.4	25.6
Passenger cars, new.....	7.2	8.2	7.9	9.4	7.8	8.1
Passenger cars, used.....	3.1	4.5	4.8	4.9	3.6	5.0
Commercial vehicles, new and used.....	1.8	1.7	1.6	1.8	1.2	1.0
Parts, accessories, tubes, tires and batteries.....	3.7	6.1	5.2	5.3	5.0	5.2
Gasoline, oil and grease.....	4.4	6.5	6.6	6.5	5.8	6.3
Men's and boys' clothing and furnishings.....	4.3	3.5	3.4	3.6	3.8	3.7
Women's, misses' and children's clothing.....	7.7	6.1	6.9	6.6	8.0	7.0
Footwear.....	3.2	2.0	2.0	2.2	2.5	2.0
Dry goods and notions.....	1.9	1.4	1.2	1.5	1.6	1.3
Hardware.....	2.0	0.8	1.4	2.0	1.8	1.3
Household furniture.....	2.1	1.7	2.0	2.4	2.8	2.6
Household appliances.....	2.3	2.3	1.9	1.6	1.8	2.0
Radios, record players and television sets.....	1.0	0.8	0.8	0.8	0.8	1.0
Household supplies.....	1.1	1.5	1.7	1.6	1.1	1.6
House furnishings.....	1.1	1.2	1.1	0.9	1.2	1.2
Drugs and drug sundries.....	1.7	2.8	2.3	2.4	2.7	2.8
Fuel.....	1.9	1.8	2.1	1.8	2.6	2.5
Cigars, cigarettes and tobacco.....	1.6	2.0	1.6	1.6	1.8	2.0
Paper, paper products and related supplies.....	0.6	1.0	1.1	1.0	1.1	1.4
Jewellery, silverware, clocks and watches.....	0.6	0.7	1.0	0.8	0.9	1.1
Sporting and recreation equipment.....	0.7	0.3	0.6	0.7	0.7	1.0
Alcoholic beverages.....	2.6	5.4	5.1	5.7	4.7	5.7
Miscellaneous commodities.....	7.8	6.1	6.9	6.2	6.2	6.6
Receipts from the sale of meals and lunches.....	0.2	0.3	0.4	0.3	0.3	0.5
Receipts from repairs and services.....	2.0	2.9	2.7	2.5	3.1	3.4
Totals, All Commodities.....	100.0	100.0	100.0	100.0	100.0	100.0
	Manitoba	Saskatchewan	Alberta	British Columbia	Yukon and N.W.T.	Canada
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Food and kindred products.....	23.4	22.8	21.7	25.0	21.1	24.9
Fresh fruits and vegetables.....	2.7	2.9	2.7	2.9	2.3	2.9
Fresh, cooked and cured meats (incl. poultry).....	5.4	4.5	4.7	5.9	4.6	6.4
Canned foods.....	5.1	6.0	5.3	5.0	4.7	5.0
All other food products.....	10.2	9.4	9.0	11.2	9.5	10.6
Automotive and related commodities.....	24.3	26.8	28.7	22.6	16.8	25.0
Passenger cars, new.....	7.8	7.3	7.5	6.2	3.1	7.8
Passenger cars, used.....	4.1	4.0	5.3	4.6	2.4	4.5
Commercial vehicles, new and used.....	0.8	1.3	2.2	1.2	1.3	1.2
Parts, accessories, tubes, tires and batteries.....	5.4	7.1	6.7	4.7	5.2	5.3
Gasoline, oil and grease.....	6.2	7.1	7.0	6.9	4.8	6.2
Men's and boys' clothing and furnishings.....	3.7	3.7	4.0	3.9	4.2	3.7
Women's, misses' and children's clothing.....	6.9	6.1	6.9	3.9	8.0	7.2
Footwear.....	2.0	1.8	2.1	2.2	2.2	2.2
Dry goods and notions.....	1.4	1.5	1.6	1.8	2.5	1.5
Hardware.....	1.7	2.7	1.9	1.4	3.6	1.6
Household furniture.....	2.1	1.8	2.1	2.2	2.0	2.5
Household appliances.....	1.9	1.8	2.5	2.0	2.1	2.0
Radios, record players and television sets.....	1.1	0.9	0.9	1.1	0.9	0.9
Household supplies.....	2.0	1.2	1.6	2.1	1.3	1.5
House furnishings.....	1.2	1.1	1.3	1.5	1.8	1.2
Drugs and drug sundries.....	3.2	2.6	2.7	3.1	2.0	2.8
Fuel.....	1.8	2.5	0.6	1.6	2.5	2.2
Cigars, cigarettes and tobacco.....	1.7	1.1	1.6	1.8	1.2	1.8
Paper, paper products and related supplies.....	1.5	1.0	1.3	1.3	0.8	1.3
Jewellery, silverware, clocks and watches.....	1.1	0.9	1.1	1.2	1.	

Service Trades.—Data from the 1961 census of service trades given in Table 5 includes the number of business locations, receipts, inventory, employment and payroll, by province, and the same information for service trade locations for Canada, classified by kind of business. Locations and receipts in metropolitan areas, major urban areas and other urban centres of 30,000 or more population are given in the 1965 Year Book at p. 857.

5.—Summary Statistics of the Service Trades, by Province, and by Kind of Business, Census, 1961

Province and Kind of Business	Locations	Receipts	Year-End Inventory	Paid Employees ¹	
				Last Week of November	Payroll for Year
	No.	\$'000	\$'000	No.	\$'000
Province					
Newfoundland.....	824	31,116	1,613	2,629	6,371
Prince Edward Island.....	360	6,442	187	758	1,392
Nova Scotia.....	2,538	64,109	2,553	7,803	16,111
New Brunswick.....	2,066	42,466	1,132	4,777	9,584
Quebec.....	23,803	821,379	32,102	81,993	201,139
Ontario.....	32,014	1,175,642	33,405	125,263	320,661
Manitoba.....	3,853	153,921	4,156	16,380	38,077
Saskatchewan.....	4,263	123,925	3,878	11,141	25,190
Alberta.....	5,921	238,268	10,805	23,952	62,382
British Columbia.....	8,957	314,417	8,585	33,265	87,601
Yukon and Northwest Territories.....	156	8,164	227	534	1,585
Canada.....	84,765	2,979,850	98,643	308,465	770,093
Kind of Business					
Amusement and Recreation.....	5,835	253,291	4,024	26,813	55,450
Theatrical services.....	2,125	135,812	2,123	13,128	27,483
Commercial sports operators.....	3,492	104,218	1,485	12,893	24,656
Miscellaneous.....	218	13,261	416	792	3,311
Business.....	4,024	272,684	3,790	31,124	118,681
Advertising and display services.....	1,004	94,159	1,903	7,980	44,751
Chartered and certified accountants and other accounting and bookkeeping service.....	1,667	85,157	74	9,129	31,777
Addressing, duplicating, blueprinting, photo-stating, mailing and typing services.....	238	16,348	645	6,757	14,799
Other business services.....	1,115	77,020	1,167	7,258	27,353
Personal.....	32,123	406,974	16,988	57,790	140,815
Barber shops and beauty salons.....	19,804	144,154	3,267	19,374	43,861
Dry cleaner services.....	3,813	117,245	2,139	19,029	49,036
Laundry services.....	2,367	95,234	2,813	15,149	37,895
Shoe repair shops and shoeshine parlours.....	3,894	23,964	7,671	1,648	3,251
Valet service, pressing and repair shops.....	896	7,107	234	575	1,106
Dressmakers.....	690	2,754	200	393	661
Cemeteries.....	80	5,996	7	549	2,215
Miscellaneous personal services.....	579	10,520	658	1,073	2,790
Repair.....	3,446	64,760	6,389	4,852	17,722
Blacksmiths and general repair shops.....	1,188	7,607	756	482	1,410
Miscellaneous repair shops.....	2,258	57,153	5,633	4,370	16,312
Undertaking and Funeral.....	1,533	69,780	3,965	3,740	13,639
Photography.....	1,332	47,463	3,179	3,287	10,854
Hotel, Tourist Camp and Restaurant.....	34,626	1,660,788	42,165	161,245	347,894
Hotels.....	5,129	587,892	12,424	56,602	142,515
Motels.....	2,693	58,700	492	4,065	8,929
Tourist courts, cabins, campgrounds, fishing and recreation camps.....	4,435	34,192	516	924	6,003
Eating and drinking places.....	22,369	1,000,003	28,733	99,654	190,447
Miscellaneous.....	1,846	204,110	18,144	19,614	65,039
Automobile and truck rentals (without driver). Taxidermists.....	305 13	40,069 228	122 27	1,656 23	6,094 72

¹ In addition to paid employees, there were 78,880 working proprietors engaged in operating service businesses.

5.—Summary Statistics of the Service Trades, by Province and by Kind of Business, Census 1961—concluded

Kind of Business	Locations	Receipts	Year-End Inventory	Paid Employees ¹	
				Last Week of November	Payroll for Year
	No.	\$'000	\$'000	No.	\$'000
Miscellaneous—concluded					
Collection agencies.....	141	5,084	31	873	2,526
Driving schools.....	138	1,988	11	279	826
Detective agencies.....	42	5,580	28	1,540	3,982
Disinfecting and exterminating service.....	48	2,420	129	303	1,020
Window cleaning service.....	70	2,772	26	525	1,697
Miscellaneous services to dwellings and buildings	267	25,676	736	6,539	14,024
Other miscellaneous services.....	822	120,293	17,024	7,876	34,798
Totals, All Locations.....	84,765	2,979,850	98,643	308,465	770,093

¹ In addition to paid employees, there were 78,880 working proprietors engaged in operating service businesses.

Because of the prevalence of eating and drinking places, the number and receipts of the different types of operation included in this classification are given for each province and for the larger urban centres or areas in Table 6.

6.—Number of Eating and Drinking Places and Receipts, by Province, Metropolitan Area, Major Urban Area and Other Urban Centres of 30,000 or More Population, Census 1961

NOTE.—Urban centres are designated in this table by the following abbreviations: m.=metropolitan area, u.=major urban area and c.=urban centres of 30,000 or more population.

Province and Area	Eating Places	Eating Places with Alcoholic Beverages	Eating Places with Other Merchandise	Refreshment Booths and Stands	Fish and Chip Shops	Cocktail Lounges, Bars and Night-clubs	Taverns, Beverage Rooms, Public Houses	Total ¹
Newfoundland..... No.	145	7	72	19	2	20	66	342
\$'000	3,591	2	1,823	161	2	1,438	4,079	11,793
St. John's, m..... No.	44	—	19	1	—	5	24	96
\$'000	1,882	—	530	2	—	481	1,989	2
Prince Edward Island. No.	50	—	16	1	2	—	—	72
\$'000	1,547	—	793	2	2	—	—	2,408
Nova Scotia..... No.	389	5	157	47	17	4	34	681
\$'000	12,974	604	4,464	719	286	176	3,289	26,224
Halifax, m..... No.	110	2	43	10	9	2	13	190
\$'000	5,051	2	1,687	392	134	2	1,722	12,250
Sydney-Glace Bay, u. No.	43	1	12	2	2	1	19	80
\$'000	1,568	2	256	2	2	2	1,446	3,421
New Brunswick..... No.	299	—	127	48	11	1	1	510
\$'000	9,409	—	4,013	382	134	2	2	14,880
Saint John, m..... No.	49	—	20	4	6	—	—	82
\$'000	2,508	—	895	75	86	—	—	2
Moncton, u..... No.	29	—	10	1	—	1	—	42
\$'000	1,655	—	314	2	—	2	—	2,087
Quebec..... No.	4,600	177	2,186	288	40	130	617	8,167
\$'000	161,863	31,245	60,974	3,558	483	14,150	37,432	321,126
Chicoutimi-Jonquière, u. No.	66	6	27	3	2	—	—	104
\$'000	1,908	599	813	19	2	—	—	2
Drummondville, u. No.	22	1	18	2	—	—	3	47
\$'000	717	2	374	2	—	—	117	1,451
Granby, c..... No.	27	3	11	3	—	—	3	47
\$'000	959	468	262	98	—	—	105	1,891
Montreal, m..... No.	2,187	89	958	70	17	48	332	3,746
\$'000	96,398	20,936	34,983	2,394	288	7,901	23,527	2
Quebec, m..... No.	310	40	93	16	—	5	54	521
\$'000	12,760	6,210	3,158	88	—	1,117	3,139	17
Shawinigan, u..... No.	50	2	19	2	—	—	—	90
\$'000	1,406	2	274	2	—	—	589	2,359

For footnotes, see end of table, p. 864.

6.—Number of Eating and Drinking Places and Receipts, by Province, Metropolitan Area, Major Urban Area and Other Urban Centres of 30,000 or More Population, Census 1961
—continued.

Province and Area	Eating Places	Eating Places with Alcoholic Beverages	Eating Places with Other Mer- chandise	Refresh- ment Booths and Stands	Fish and Chip Shops	Cocktail Lounges, Bars and Night- clubs	Taverns, Beverage Rooms, Public Houses	Total ¹
Quebec—concluded								
Sherbrooke, u. No.	65	2	29	—	—	2	1	99
\$'000	2,312	2	1,302	—	—	2	2	4,116
St. Jean, u. No.	34	2	25	1	—	—	5	67
\$'000	1,114	2	559	2	—	—	227	2,467
Trois-Rivières, u. No.	73	7	29	1	1	5	12	129
\$'000	1,923	638	1,247	2	2	582	660	5,164
Valleyfield, u. No.	24	2	10	3	—	—	2	42
\$'000	742	2	261	17	—	—	2	1,225
Ontario	No.							
\$'000	3,971	101	1,722	201	307	20	443	7,099
Belleville, c. No.	179,536	21,321	72,664	4,489	5,081	3,862	42,754	380,076
\$'000	26	—	5	—	1	—	—	34
Brantford, u. No.	1,031	—	376	—	2	—	—	1,546
\$'000	25	—	18	2	4	—	2	52
Cornwall, c. No.	1,343	—	772	2	95	—	2	2,447
\$'000	24	—	13	—	2	—	4	831
Fort William- Port Arthur, u. No.	928	6	313	—	2	—	380	1,831
\$'000	76	539	27	4	—	—	4	118
Guelph, u. No.	3,459	—	575	91	—	—	398	2
\$'000	22	—	19	—	2	—	—	45
Hamilton, m. No.	779	—	832	—	2	—	—	2,100
\$'000	236	14	87	15	42	4	44	457
Kingston, u. No.	10,428	2,256	3,410	357	419	651	4,646	2
\$'000	47	—	9	1	1	—	3	63
Kitchener, m. No.	2,792	—	588	2	2	—	259	4,030
\$'000	68	—	39	3	5	—	7	129
London, m. No.	3,082	—	2,225	179	2	—	774	2
\$'000	125	5	55	4	5	—	8	209
Niagara Falls, u. No.	5,465	1,014	2,831	151	133	—	1,194	11,222
\$'000	61	3	12	3	2	—	10	97
Oshawa, u. No.	2,745	383	614	45	2	—	774	5,114
\$'000	40	—	30	2	4	—	—	77
Ottawa, m. No.	1,454	—	1,370	2	72	—	—	3,618
\$'000	270	11	109	4	1	2	38	447
Peterborough, u. No.	14,571	1,825	5,532	450	2	2	4,193	29,071
\$'000	33	—	17	2	2	—	2	60
St. Catharines, u. No.	1,771	—	783	2	2	—	2	3,286
\$'000	55	1	21	8	4	—	7	100
Sarnia, u. No.	2,189	2	818	245	58	—	654	2
\$'000	39	—	11	1	2	—	2	57
Sault Ste. Marie, u. No.	1,833	—	345	2	1	—	2	2,665
\$'000	42	4	5	1	—	—	6	59
Sudbury, m. No.	1,855	457	227	2	4	—	684	2
\$'000	62	2	22	4	—	1	5	99
Timmins, u. No.	3,553	2	964	82	—	2	569	5,386
\$'000	21	—	8	2	—	—	9	40
Toronto, m. No.	1,005	—	218	2	—	—	438	2
\$'000	1,196	37	448	18	181	8	102	2,101
Welland, c. No.	67,661	10,768	24,774	596	3,108	2,702	16,704	2
\$'000	18	8	125	1	4	—	1	33
Windsor, m. No.	833	—	42	5	6	3	69	1,086
\$'000	125	6	42	5	6	3	69	263
\$'000	5,450	2,436	1,708	67	138	208	6,095	2
Manitoba	No.							
\$'000	580	52	279	25	7	3	11	990
Winnipeg, m. No.	23,627	2	9,096	490	55	405	585	44,670
\$'000	328	44	116	6	5	2	—	524
\$'000	15,093	7,608	4,217	48	42	2	—	2
Saskatchewan	No.							
\$'000	580	14	293	17	2	1	67	998
Moose Jaw, c. No.	22,153	—	10,211	267	2	2	2,082	38,016
\$'000	20	—	11	1	—	—	—	32
Regina, c. No.	1,276	—	459	2	—	—	—	2
\$'000	64	7	24	—	—	—	—	101
Saskatoon, c. No.	3,930	688	1,692	—	—	—	—	2
\$'000	65	4	25	—	2	—	—	98
\$'000	3,840	471	1,229	—	2	—	—	5,766

For footnotes, see end of table, p. 864.

6.—Number of Eating and Drinking Places and Receipts, by Province, Metropolitan Area, Major Urban Area and Other Urban Centres of 30,000 or More Population, Census 1961
—concluded.

Province or Territory and Area	Eating Places	Eating Places with Alcoholic Beverages	Eating Places with Other Merchandise	Refreshment Booths and Stands	Fish and Chip Shops	Cocktail Lounges, Bars and Night-clubs	Taverns, Beverage Rooms, Public Houses	Total.
Alberta.....	No. 948	26	331	29	6	2	17	1,396
	\$'000 42,128	5,400	13,218	995	307	2	681	2
Calgary, m.....	No. 174	10	52	2	—	—	—	246
	\$'000 11,169	1,639	2,769	2	—	—	—	2
Edmonton, m.....	No. 235	14	51	8	2	2	1	327
	\$'000 11,547	3,478	2,862	620	2	2	2	20,414
Lethbridge, c.....	No. 29	—	6	1	2	—	—	39
	\$'000 1,549	—	312	2	2	—	—	2,020
British Columbia...	No. 1,293	70	414	83	55	17	57	2,076
	\$'000 47,755	9,196	12,825	3,065	958	2,606	5,241	92,938
Vancouver, m.....	No. 636	44	193	38	22	14	23	1,003
	\$'000 25,396	6,487	6,360	1,948	253	2,218	3,166	55,270
Victoria, m.....	No. 98	10	28	2	20	2	4	169
	\$'000 3,364	1,520	993	2	486	2	664	7,501
Yukon and North-west Territories.	No. 23	—	2	2	—	2	3	38
	\$'000 950	—	2	2	—	2	115	1,867
Canada.....	No. 12,878	452	5,599	760	449	200	1,316	22,369
	\$'000 505,534	77,695	190,149	14,144	7,374	23,073	96,286	1,000,003

¹ Includes other establishments not classified.

² Figures withheld to avoid disclosure of individual operations.

Subsection 2.—Wholesale Trade (Intercensal)

Total sales of wholesalers, estimated from the results of intercensal sample surveys, have shown a continuously upward trend over the past decade, reaching a record amount of \$11,148,000,000 in 1964. As indicated in Table 7, all business groups reported increases in 1964 over 1963 with the exception of coal and coke and the decline for this group was very small.

7.—Wholesale Sales, by Kind of Business, 1960-64

NOTE.—Includes only wholesalers proper, i.e., firms performing the function of buying merchandise on their own account for resale.

Kind of Business	1960	1961	1962	1963	1964 ^a
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Fresh fruits and vegetables.....	288	289	308	321	350
Groceries and food specialties.....	1,650	1,751	1,863	1,982	2,105
Meat and dairy products.....	165	175	174	179	195
Clothing and furnishings.....	116	117	103	105	111
Footwear.....	38	39	41	42	44
Other textile and clothing accessories.....	205	206	208	212	231
Drugs and drug sundries.....	222	236	248	260	281
Household electrical appliances.....	183	200	210	212	233
Farm machinery.....	73	68	71	83	100
Coal and coke.....	153	141	140	152	161
Hardware.....	227	351	357	358	373
Construction materials and supplies including lumber.....	878	726	780	838	959
Industrial and transportation equipment and supplies.....	748	750	776	825	980
Commercial, institutional and service equipment and supplies.....	137	140	139	142	150
Automotive parts and accessories.....	415	414	441	455	461
Newsprint, paper and paper products.....	276	292	309	335	364
Tobacco, confectionery and soft drinks.....	741	770	796	809	838
Other.....	2,149	2,373	2,676	2,885	3,223
Totals, All Trades.....	8,765	9,037	9,641	10,195	11,148

Subsection 3.—Retail Trade (Intercensal)

The trend of retail trade is one of the best general indicators of the economic condition of the country. It is through retail stores that most goods are ultimately sold and such sales reflect the financial strength of the consumer except in times of short supply. The value of retail sales, estimated from intercensal sample surveys, increased by 53 p.c. during the period 1955-64. Estimates, by province and by kind of business, for 1960-64, not adjusted for price changes, are shown in Table 8.

8.—Retail Trade, by Province and by Kind of Business, 1960-64

Province and Kind of Business	1960	1961	1962	1963	1964 ^p
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Province					
Atlantic Provinces.....	1,430	1,465	1,521	1,594	1,701
Quebec.....	3,944	4,183	4,571	4,841	5,076
Ontario.....	6,313	6,340	6,641	7,016	7,407
Manitoba.....	843	817	880	915	971
Saskatchewan.....	938	905	968	1,056	1,154
Alberta.....	1,366	1,401	1,492	1,578	1,664
British Columbia ¹	1,668	1,665	1,797	1,911	2,096
Canada².....	16,502	16,777	17,871	18,910	20,068
Kind of Business					
Grocery and combination stores.....	3,474	3,581	3,754	3,937	4,141
Other food and beverage stores.....	1,225	1,244	1,344	1,422	1,502
General stores.....	640	654	678	705	741
Department stores.....	1,454	1,503	1,563	1,649	1,801
Variety stores.....	350	371	391	408	459
Motor vehicle dealers.....	2,551	2,488	2,741	3,034	3,277
Garages and filling stations.....	1,145	1,212	1,306	1,364	1,425
Men's clothing stores.....	259	261	281	303	322
Family clothing stores.....	235	243	252	257	272
Women's clothing stores.....	277	283	297	308	324
Shoe stores.....	169	170	180	182	184
Hardware stores.....	326	328	331	345	365
Lumber and building material dealers.....	436	426	452	473	511
Furniture, appliance and radio dealers.....	547	548	573	590	622
Restaurants.....	569	573	612	640	660
Fuel dealers.....	324	317	360	364	352
Drug stores.....	416	428	442	460	481
Jewellery stores.....	134	134	138	145	153
Miscellaneous.....	1,971	2,012	2,176	2,324	2,474

¹ Includes the Yukon and Northwest Territories.
because of rounding of the figures.

² Totals are not the exact addition of the components

Farm Implement Sales.—The value, at wholesale prices, of new farm implements and equipment sold in 1963 amounted to \$287,839,000, an increase of 20.5 p.c. over the value of such sales in 1962. Decreases in the Atlantic Provinces and British Columbia were more than offset by substantial increases in the other provinces. In addition to the amount spent on new machinery, \$49,721,863 was spent in 1963 for repair parts, 13.3 p.c. more than in 1962.

9.—Sales of Farm Implements and Equipment, by Province and by Major Group, 1959-63

(Values at wholesale prices)

Province and Major Group	1959	1960	1961	1962	1963	Percentage Change 1962-63
	\$'000	\$'000	\$'000	\$'000	\$'000	
Province						
Atlantic Provinces.....	6,482	7,693	8,165	6,722	6,712	- 0.1
Quebec.....	27,030	26,792	30,277	32,555	35,063	+ 7.7
Ontario.....	50,593	49,399	51,006	50,886	59,769	+17.5
Manitoba.....	24,082	25,877	18,958	28,054	35,916	+28.0
Saskatchewan.....	50,520	57,359	41,615	59,348	82,666	+39.3
Alberta.....	47,934	44,993	45,723	55,294	61,930	+12.0
British Columbia.....	5,590	5,252	6,033	5,938	5,783	- 2.6
Totals.....	212,231	217,465	201,777	238,797	287,839	+20.5
Major Group						
Tractors and engines.....	78,938	80,093	74,764	80,631	97,678	+21.1
Ploughs.....	11,189	11,635	11,460	10,969	12,934	+17.9
Tilling, cultivating and weeding machinery.....	11,920	12,650	12,939	15,363	18,050	+17.5
Planting, seeding and fertilizing machinery.....	7,894	7,873	8,224	9,477	11,380	+20.1
Haying machinery.....	30,655	30,544	29,298	32,214	31,425	- 2.4
Harvesting machinery.....	44,122	46,485	37,631	57,626	78,182	+35.7
Machines for preparing crops for market or for use.	7,510	6,261	6,233	7,658	10,043	+31.1
Farm wagons, wagon trucks and sleighs.....	1,994	2,025	1,910	1,770	2,610	+47.5
Barn equipment.....	3,869	4,095	4,535	5,892	6,289	+ 6.7
Dairy machinery and equipment.....	5,139	5,766	5,589	5,621	4,993	-11.2
Spraying and dusting equipment.....	1,466	1,637	1,758	1,828	2,271	+24.2
Miscellaneous farm equipment.....	7,535	8,401	7,436	9,748	11,984	+22.9

New Motor Vehicle Sales.—Sales of new motor vehicles reached a peak in 1964 when 725,879 vehicles valued at \$2,337,802,000 were sold. Sales over the ten-year period 1955-64 are shown in Table 10.

10.—Retail Sales of New Motor Vehicles, 1955-64

Year	Passenger Cars		Trucks and Buses		Totals	
	No.	\$	No.	\$	No.	\$
1955.....	386,962	1,023,351,000	78,716	232,539,000	465,678	1,255,890,000
1956.....	408,233	1,128,640,000	91,688	326,735,000	499,921	1,455,375,000
1957.....	382,023	1,087,620,000	76,276	281,311,000	458,299	1,368,931,000
1958.....	376,723	1,110,724,000	68,046	254,742,000	444,769	1,365,466,000
1959.....	425,038	1,240,961,000	77,588	299,207,000	502,626	1,540,168,000
1960.....	447,771	1,289,073,000	75,417	285,754,000	523,188	1,574,827,000
1961.....	437,319	1,290,026,000	74,160	261,382,000	511,479	1,551,408,000
1962.....	502,565	1,482,407,000	82,645	300,599,000	585,210	1,782,916,000
1963.....	557,787	1,716,121,000	97,202	345,918,000	654,989	2,062,039,000
1964 ^a	616,759	1,936,258,000	109,120	401,544,000	725,879	2,337,802,000

Sales Financing.—As shown in Table 11, the amount of instalment financing transacted by sales finance companies reached a record level in 1963, paper purchased and balances outstanding being higher than in 1962 for every type of goods except radio and television sets, household appliances, furniture, etc.

11.—Retail Instalment Paper Purchased and Balances Outstanding, by Class of Goods, 1959-63

(Millions of dollars)

Class of Goods	Paper Purchased					Balances Outstanding Dec. 31—				
	1959	1960	1961	1962	1963	1959	1960	1961	1962	1963
Consumer Goods	902	878	768	851	925	806	829	756	801	874
New passenger cars.....	371	378	330	381	442	610	625	569	609	687
Used passenger cars.....	323	298	250	265	288					
Radio and television sets, household appliances, furniture and other.....	208	202	188	205	195	196	204	187	192	187
Commercial and Industrial	356	366	344	378	420	344	393	395	440	519
New commercial vehicles.....	95	97	87	94	108	138	151	138	151	170
Used commercial vehicles.....	59	57	47	49	51					
Other.....	202	212	210	235	261	206	242	257	289	349
Totals	1,258	1,244	1,112	1,229	1,345	1,150	1,222	1,151	1,241	1,393

Consumer Credit.—Total balances outstanding on credit extended to consumers by retail stores and certain financial institutions are increasing very rapidly. Although the financial institutions included in the survey do not cover all sources of consumer credit, returns from the selected holders indicate that balances outstanding on credit extended to individuals for the purchase of consumer goods and services have more than doubled since 1955. The figures in Table 12 do not include credit extended for commercial purposes.

12.—Balances Outstanding on Retail Trade Credit and Loans Extended to Individuals for Non-business Purposes by Certain Financial Institutions, 1955-64

(Millions of dollars)

Year	Retail Trade Credit	Sales Finance Companies	Small Loans Companies	Chartered Banks	Credit Unions	Life Insurance Companies Policy Loans
1955.....	822	599	279	780	174	250
1956.....	873	756	356	748	226	270
1957.....	901	780	362	677	255	295
1958.....	937	768	401	840	320	305
1959.....	992	806	484	1,001	397	323
1960.....	1,038	828	549	1,143	433	344
1961.....	1,088	756	594	1,366	516	358
1962.....	1,125	801	714	1,555	579	372
1963.....	1,183	874	810	1,824	691	385
1964 ^p	1,243	967	901	2,252	840	397

Accounts outstanding on the books of retailers stood at \$1,242,600,000 at the end of 1964. Lumber and building material dealers and farm implement dealers, at one time included in these figures, have been omitted since 1958 so that the results now approximate more closely "consumer" credit.

13.—Retail Credit 1955-64, and by Kind of Business, 1964

Year	Accounts Receivable (at end of period)	Kind of Business	Accounts Receivable (at end of period)		
			Instalment	Charge	Total
	\$'000,000		\$'000,000	\$'000,000	\$'000,000
		1964 ¹			
1955.....	924.6 ¹	Department stores.....	..	..	508.2
1956.....	981.5 ¹	Motor vehicle.....	18.0	96.1	114.1
1957.....	1,014.2 ¹	Men's clothing.....	8.9	14.1	23.0
1958.....	937.2	Family clothing.....	13.7	12.6	26.3
1959.....	992.5	Women's clothing.....	4.0	12.3	16.3
1960.....	1,037.6	Hardware.....	14.4	29.8	44.2
1961.....	1,088.2	Furniture, appliance and radio.....	168.8	31.8	200.6
1962.....	1,125.1	Jewellery.....	14.5	9.5	24.0
1963.....	1,182.8	Grocery and combination (independent).....	2	38.1	38.1
1964.....	1,242.6	General stores.....	2	39.3	39.3
		Fuel.....	4.1	55.7	59.8
		Garages and filling stations.....	2	31.4	31.4
		All other trades.....	28.6	88.7	117.3

¹ Includes lumber and farm implement dealers (see preceding text).² Included in "Charge".

Subsection 4.—Service Establishments (Intercensal)

Motion Picture Theatres.—The receipts of motion picture theatres reached a peak in 1953 when they amounted to \$108,604,000; since then they declined each year to \$67,748,000 in 1962 but rose to \$71,641,505 in 1963. The number of regular theatres in operation continues to decrease although drive-ins show some advance in both number and receipts.

14.—Summary Statistics of Motion Picture Theatre Operations, 1962 and 1963

Item	1962			1963		
	Regular Theatres	Drive-in Theatres	Total	Regular Theatres	Drive-in Theatres	Total
Establishments..... No.	1,278	240	1,518	1,245	241	1,486
Receipts (excluding taxes)..... \$	60,941,230	6,806,888	67,748,118	63,816,752	7,824,753	71,641,505
Amusement taxes..... \$	4,371,113	399,346	4,770,459	4,370,712	396,002	4,766,714
Paid admissions..... No.	91,258,324	9,585,845	100,844,169	87,966,686	9,921,586	97,888,272

Motion Picture Production.—In 1963 there were 69 private firms producing and printing motion picture films and filmstrips for industry, government, education, entertainment, etc. These firms employed 949 persons, paid out \$3,812,000 in salaries and wages and had a gross revenue of \$12,115,269. Films were also produced by government agencies but operating information concerning such production is not available. In addition, ten firms in other business categories produced films in 1963 (38 entertainment and documentary films for television use, three non-theatrical films, 34 commercial advertising films for television, one silent motion picture film and 165 other films). This production brought in revenue amounting to \$79,762.

Table 15 shows types of film produced by private industry, classified by major producing region, and by government agencies during 1963. Altogether, these agencies produced 73,059,176 feet of 16mm. film in black and white, 9,642,490 feet of 16mm. film in colour, 16,547,522 feet of 35mm. film in black and white and 1,143,122 feet of 35mm. film in colour.

15.—Private Industry and Government Motion Picture Production, by Type of Film, 1963

Type	Private Industry				Government	Private and Government
	Quebec	Ontario	Other Provinces	Total		
	No.	No.	No.	No.	No.	No.
Films in English or French.....	1,061	5,273	948	7,282	550	7,832
Theatrical features, 60 minutes or longer.....	—	—	—	—	1	1
Theatrical shorts, less than 60 minutes.....	8	4	—	12	27	39
Television entertainment.....	199	179	—	378	2	380
Television, information or documentary.....	193	195	6	394	129	523
Non-theatrical (also non-television) motion pictures.....	20	380	110	510	104	614
Silent motion pictures.....	8	56	50	114	23	137
Television commercials (two minutes or less)	208	2,582	373	3,163	1	3,164
Theatre commercials (two minutes or less)...	—	13	—	13	—	13
Other (newsreels, newsclips, trailers, titles, production services, etc.).....	356	1,813	408	2,577	193	2,770
Silent filmstrips (slide films).....	69	—	—	69	68	137
Sound filmstrips (slide films) with records..	—	51	1	52	2	54
Films in Other than English or French.....	73	2	—	75	88	163

Advertising Agencies.—Table 16 records the growth of business done by advertising agencies during 1963 as compared with the four previous years.

16.—Summary Statistics of Advertising Agencies, 1959-63

Item	1959	1960	1961	1962	1963
Billings..... \$	254,145,919	272,739,802	282,561,449	298,584,954	302,851,514
Commissionable billings..... \$	250,080,021	267,756,156	277,805,963	293,028,021	296,762,297
Other..... \$	4,065,898	4,983,646	4,755,486	5,556,933	6,089,217
Gross revenue..... \$	41,126,958	45,150,389	46,089,647	49,348,113	50,465,061
Distribution of Billings—					
Publications..... p.c.	47.8	47.2	45.5	44.0	42.2
Production, artwork, etc..... "	14.7	18.7	19.0	17.2	16.2
Radio..... "	10.6	9.7	9.4	10.8	10.7
Television..... "	21.3	19.3	21.4	22.8	26.3
Other visual..... "	4.8	5.1	4.6	5.1	4.6
Other..... "	0.8	--	0.1	0.1	--

Hotels.—In 1962 there were 4,983 hotels in operation in Canada, 4,327 of them full-year hotels and 656 seasonal. Table 17 shows the provincial distribution of these establishments, together with the sources of their revenue for 1962 with totals for 1958-62.

17.—Hotels and Their Receipts, by Source 1958-62, and by Province, 1962

Year and Province or Territory	Hotels	Rooms	Receipts				
			Rooms	Meals	Beer, Wine and Liquor	All Other Sources	Total ¹
	No.	No.	\$'000	\$'000	\$'000	\$'000	\$'000
1958.	5,088	151,362	111,174	87,550	243,695	37,876	480,295
1959.	5,269	154,725	117,396	95,139	264,087	40,861	517,483
1960.	5,294	155,538	120,890	98,641	283,223	42,703	545,457
1961.	5,128	159,674	130,077	104,024	285,125	48,537	567,762
1962.	4,983	152,467	135,751	112,306	295,868	43,764	587,689
Province, 1962							
Newfoundland.	69	1,333	1,766	1,122	2,212	424	5,525
Prince Edward Island.	15	477	354	300	—	53	707
Nova Scotia.	109	3,341	3,586	2,210	810	691	7,297
New Brunswick.	78	2,876	2,392	1,440	145	488	4,465
Quebec.	1,603	43,170	36,840	28,897	70,935	9,958	146,630
Ontario.	1,356	44,978	42,344	42,359	82,390	13,338	181,431
Manitoba.	279	8,132	6,419	5,417	30,493	3,291	45,621
Saskatchewan.	453	10,521	5,713	4,467	31,304	2,978	44,464
Alberta.	455	15,673	14,704	9,440	35,872	6,421	66,437
British Columbia, Yukon and North-west Territories.	566	21,966	20,633	16,652	41,707	6,121	85,113

¹ Components may not add to totals because of rounding.

Section 2.—The Marketing of Agricultural Products

Subsection 1.—The Grain Trade, 1963-64

Total production of the five major Canadian grains—wheat, oats, barley, rye and flaxseed—in 1963 amounted to 1,431,172,000 bu., 14 p.c. higher than the 1962 level of 1,253,138,000 bu. but still 5 p.c. lower than the record 1952 outturn of 1,500,347,000 bu. At the same time, carryover stocks increased from 537,006,000 bu. in 1962 to 734,919,000 bu. in 1963, so that domestic supplies amounted to 2,166,291,000 bu. in 1963-64, some 21 p.c. greater than the 1,790,232,000 bu. of the previous season. Total marketings in the Prairie Provinces during the crop year 1963-64 amounted to 735,653,000 bu., 10 p.c. above the comparable 1962-63 level of 666,658,000 bu. and 28 p.c. above the ten-year (1952-53—1961-62) average of 572,912,000 bu. Reflecting increased shipments of wheat, wheat flour, barley and flaxseed, total exports of the five major grains and their products reached a record 679,381,000 bu., some 75 p.c. higher than the 1962-63 figure of 388,320,000 bu. and 60 p.c. above the ten-year average of 423,956,000 bu.

Disappearance of these grains into domestic channels in 1963-64 was estimated at 716,192,000 bu., an increase of 7 p.c. over the 1962-63 total of 666,994,000 bu. Despite the sharp increase in exports and the substantial increase in domestic utilization, total production of the five grains more than offset disappearance and, as a result, carryover stocks at July 31, 1964 amounted to 770,721,000 bu., 5 p.c. larger than the 734,919,000 bu. at July 31, 1963.

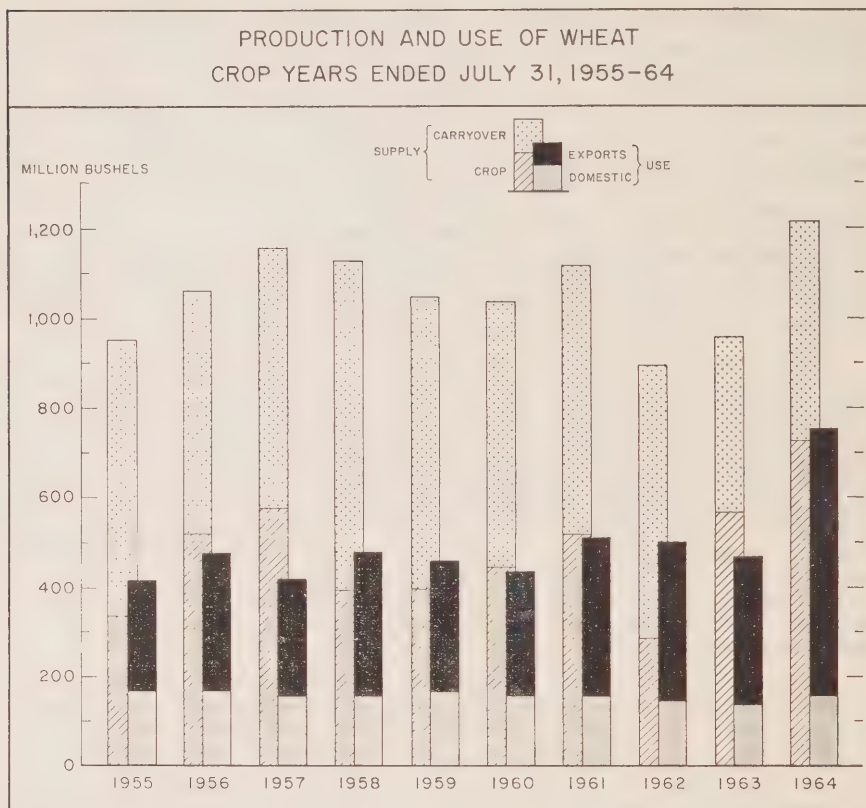
In 1963-64, marketings of wheat, oats and barley continued under the compulsory crop-year pools system of the Canadian Wheat Board. As in the preceding year, an initial quota of 100 units was in effect at local delivery points at the beginning of the marketing year. Permit holders were entitled to deliver a maximum of 300 bu. of wheat or 800 bu. of oats or 500 bu. of barley or 500 bu. of rye or any combination of these grains which, when calculated on a unit basis, did not exceed 100 units. This initial unit quota was followed by

general quotas based upon bushels per specified acre. Specified acreage consisted of each permit-holder's acreage seeded to wheat (including Durum), oats, barley and rye, the summer fallow acreage and the eligible acreage seeded to cultivated grasses and forage crops. Durum wheat was not included in the specified acreage for the 1962-63 crop year, but in 1963-64 became part of the producers' specified acreage for quota purposes. The first general quotas were established at all delivery points in early September and were extended and increased as local country elevator space became available. The flaxseed delivery quota of 5 bu. per seeded acre or 200 bu., whichever was the larger, was increased on Dec. 9 to 8 bu. per seeded acre or 325 bu. and on Jan. 22, 1964 it was declared open for the remainder of the 1963-64 crop year. The initial rapeseed delivery quota of 7 bu. per seeded acre or 300 bu., whichever was the larger, was raised on Aug. 21 to 10 bu. per seeded acre or 700 bu. and on Sept. 2 it was declared open for the remainder of the crop year. Rye, which was contained in the specified acreage, was placed on an open delivery quota on Mar. 30, 1964, and a number of supplementary delivery quotas were established on oats and barley.

Because stocks of grain in both country and terminal elevators on Aug. 1, 1963 were at the high level of 547,509,000 bu., delivery opportunities at country elevators were limited during the first few weeks of the crop year and quotas advanced slowly. However, the strong demand for wheat that developed early in September necessitated the movement of large volumes of grain from country positions during the September-January period and the space thus created in country elevators permitted a steady advance in delivery quotas even though large volumes of grain were being marketed at each quota level as a result of record yields in most areas. By the end of the first half of the crop year, most delivery points were on a quota of 4, 5 or 6 bu. per specified acre. Although the grain movement from country positions was reduced during February and March when navigation was closed on the Great Lakes, it continued at a relatively high level and then increased to average about 82,000,000 bu. a month during the last quarter of the crop year. By the second week in June all delivery points were on an 8-bu. specified acreage quota.

On May 7, 1964, the Board announced a change in the administration of delivery quotas. On May 11, 1964, a Wheat Board change in the administration of delivery quotas became effective. The maximum specified acreage quota for the 1963-64 crop year was set at the 8-bu. level, with additional quotas to be granted on the basis of a supplementary quota on individual grains. All delivery points on an 8-bu. quota on that date were given a supplementary wheat (other than Durum) quota of 5 bu. per acre seeded to wheat or 300 bu., whichever was the larger. As the quotas at other delivery points were raised to the 8-bu. level they were automatically placed on the 5-bu. supplementary wheat quota. The change was necessary to ensure that there would be sufficient quantities of wheat in the marketing pipeline to meet extremely heavy sales commitments and to avoid congesting marketing facilities with grain that was not immediately required for the market. On June 22, 1964, the supplementary quota on wheat was increased to the larger of 10 bu. per acre seeded to wheat or 600 bu. By the end of the crop year all of the 1,910 delivery points in the Western Division were on the 8-bu. per specified acre quota and the 10-bu. per seeded acre supplementary wheat quota. Soft white spring wheat was contained in the specified acreage and in the supplementary wheat quotas.

Wheat.—Supplies of wheat for the 1963-64 crop year reached an all-time high of 1,210,692,000 bu., reflecting an increase in carryover stocks from 391,058,000 bu. in 1962 to 487,247,000 bu. in 1963, combined with the record 1963 production of 723,412,000 bu. Supplies were 27 p.c. greater than the 1962-63 total and 5 p.c. greater than the previous peak established in 1956-57. Exports of wheat and wheat flour in terms of wheat reached an all-time high of 594,548,000 bu., 79 p.c. greater than the quantity exported in the preceding year and 46 p.c. greater than the previous record set in 1928-29. Domestic disappearance of wheat was 156,704,000 bu. as compared with the 1962-63 figure of 138,011,000 bu. Total disappearance, amounting to some 751,252,000 bu., more than offset the record production and, as a result, carryover stocks at July 31, 1964 were 459,440,000 bu. compared with 487,247,000 bu. at July 31, 1963.



The initial payment for Western Canadian wheat in the 1963-64 crop year was \$1.50 per bu., basis No. 1 Northern in store Fort William-Port Arthur or Vancouver. There were no adjustment or interim payments on the 1963-64 wheat pool but on Mar. 2, 1965 the final payment was announced. Producers delivered a record 563,875,000 bu. of wheat to the 1963-64 pool, including 43,425,000 bu. of Durum wheat, which was the largest volume ever delivered by producers to the Board in a crop year. The amount of the final payment distributed to producers was a record \$271,964,000, of which amount \$18,376,000 was distributed to producers of Durum wheat. After deducting the Prairie Farm Assistance Act levy, the average final payment on spring wheat (other than Durum) was 48.725 cents per bu. and the average final payment on Durum grades was 42.317 cents per bu. The total payment for No. 1 Northern, basis in store Fort William-Port Arthur or Vancouver and prior to deduction of the PFAA levy, was \$1.97366 per bu.

The crop year 1963-64 coincided with the second year of the fifth three-year International Wheat Agreement (IWA) which became effective Aug. 1, 1962. Sales under the Agreement continued to be quite widely distributed with 28 of the 38 importing countries included in the pact purchasing wheat and/or flour from Canada. Purchases of Canadian wheat and flour under the terms of the IWA amounted to the equivalent of 245,018,000 bu. and accounted for 37 p.c. of total sales under the Agreement. IWA shipments to Britain

amounted to some 90,832,000 bu. and the other major importers were as follows: Japan, 49,812,000 bu.; Federal Republic of Germany, 37,277,000 bu.; Belgium and Luxembourg, 15,709,000 bu.; Switzerland, 8,072,000 bu.; Venezuela, 7,904,000 bu.; Philippines, 7,308,000 bu.; Netherlands, 3,200,000 bu.; and Republic of South Africa, 3,038,000 bu. The leading markets for Class II wheat and flour in 1963-64 were: U.S.S.R., 184,348,000 bu.; Communist China, 41,286,000 bu.; Czechoslovakia, 28,662,000 bu.; Poland, 16,767,000 bu.; Cuba, 14,810,000 bu.; East Germany, 14,473,000 bu.; Romania, 9,671,000 bu.; and Bulgaria, 9,552,000 bu. During 1962-63, domestic sales of all classes of wheat were made at the same prices as those prevailing for wheat sold under the IWA. Class II prices for all grades of wheat coincided with the IWA and domestic quotations.

Other Grains.—The supply and disposition of the major Canadian grains for the crop years 1962-63 and 1963-64 is shown in Table 18.

The initial payment for oats in the 1963-64 crop year basis No. 2 C.W. in store Fort William-Port Arthur, at 60 cents per bu., remained the same as in 1962-63. The initial payment for barley basis No. 3 C.W. Six-Row, in store Fort William-Port Arthur, at 96 cents per bu., was also unchanged from the previous year. No interim payments were made on either grain during the crop year. Final payment to producers on the 1963-64 oat pool, announced on Mar. 30, 1965, amounted to some \$4,707,000 based on deliveries of 48,272,000 bu., the average being 9.751 cents per bu. after deducting the 1-p.c. PFAA levy. The final payment on the 1963-64 barley pool, announced Feb. 11, 1965, was based on deliveries of 88,849,000 bu. and amounted to some \$20,093,000, the average being 22.615 cents per bu. after deducting the 1-p.c. PFAA levy. Total prices, basis in store Fort William-Port Arthur, realized by producers for representative grades prior to the PFAA levy were as follows: No. 2 C.W. oats, \$0.69246 per bu.; No. 1 Feed oats, \$0.65096 per bu.; No. 3 C.W. Six-Row barley, \$1.17796 per bu.; and No. 1 Feed barley, \$1.09796 per bu.

Deliveries of rye and flaxseed in Western Canada amounted to 7,971,000 bu. and 17,375,000 bu., respectively.

Combined exports of oats, bagged seed oats, barley, rye and flaxseed (including exports of oatmeal and rolled oats, malt, pot and pearl barley and rye flour and meal in terms of grain equivalent) amounted to 84,834,000 bu. during the crop year 1963-64, some 49 p.c. more in 1962-63 but 27 p.c. below the ten-year (1952-53—1961-62) average. Exports of Canadian oats in bulk totalled 17,532,000 bu. compared with 20,585,000 bu. shipped in the previous year. Most of the decline was accounted for by smaller shipments to the following destinations, with totals for the previous year in brackets: Belgium and Luxembourg, 1,170,000 bu. (3,432,000 bu.); Federal Republic of Germany, 1,791,000 bu. (3,333,000 bu.); United States, 1,574,000 bu. (2,496,000 bu.); and Britain, 1,218,000 bu. (1,592,000 bu.). The major market for Canadian oats in 1963-64 was the Netherlands, shipments to that country totalling 8,410,000 bu. compared with 7,377,000 bu. in the previous year. Customs exports of bagged seed oats were 516,000 bu. compared with 489,000 in 1962-63 and exports of oatmeal and rolled oats amounted to the equivalent of 711,000 bu. compared with 625,000 in the previous year.

Barley exports, at 41,526,000 bu., represented a sharp increase over the 1962-63 level of 10,534,000 bu. Major shipments went to Communist China, 14,694,000 bu., compared with 1,083,000 bu. in the previous year; Britain, 9,546,000 bu., compared with 6,803,000 bu. and United States, 8,675,000 bu. compared with 2,233,000 bu. Japan and Czechoslovakia re-entered the Canadian market in 1963-64 with purchases of 3,654,000 bu. and 3,022,000 bu., respectively, and Korea, after an absence of more than ten years, purchased more than 1,366,000 bu. of Canadian barley. In addition to the exports of barley as grain, shipments of malt amounted to the equivalent of 5,409,000 bu. compared with a 1962-63 equivalent

of 4,843,000 bu.; of the 1963-64 exports, the equivalent of 2,633,000 bu. went to the States. Exports of rye declined to 5,501,000 bu. in 1963-64 from the 7,310,000 bu. in 1962-63. The Netherlands purchased 2,848,000 bu. and thus accounted for more than half the crop-year total. Smaller shipments went to seven other countries.

Clearances of Canadian flaxseed moving overseas during 1963-64 amounted to 13,638,000 bu. compared with 12,566,000 bu. in the previous year. Britain, the largest market, imported 4,545,000 bu., Japan 3,830,000 bu., and the Netherlands 1,476,000 bu. Smaller shipments went to about 12 other overseas destinations. Exports of linseed were equivalent to about 594,000 bu. of flaxseed, most of which went to Britain. In addition to exports of the five principal grains and their products in the 1963-64 crop year, rapeseed amounted to 5,182,000 bu. compared with 5,671,000 bu. in the preceding year. Mustard seed exports amounting to 1,070,000 bu. of which went to Japan. Mustard seed exports amounting to 1,070,000 bu. went mainly to the United States, Japan, Belgium and Luxembourg.

18.—Supply and Disposition of Canadian Grain, Crop Years Ended July 31, 1963

(Millions of bushels)

Item	Wheat	Oats	Barley	Rye
Crop Year 1962-63				
Carryover, Aug. 1, 1962.....	391.1	79.1	57.8	3.8
Production in 1962.....	565.6	493.6	165.9	12.0
Imports ¹	2	2	2	0.1
Totals, Supply	956.6	572.7	223.7	15.9
Exports ³	331.2	21.7	15.4	7.3
Domestic use ⁴	138.1	400.7	119.1	4.4
Totals, Disposition	469.4	422.4	134.5	11.7
Carryover, July 31, 1963.....	487.2	150.3	89.2	4.2
Crop Year 1963-64				
Carryover, Aug. 1, 1963.....	487.2	150.3	89.2	4.2
Production in 1963.....	723.4	453.1	220.7	12.8
Imports ¹	2	2	2	0.1
Totals, Supply	1,210.7	603.4	309.9	17.1
Exports ³	594.5	18.8	46.9	5.5
Domestic use ⁴	156.7	405.2	144.7	4.6
Totals, Disposition	751.3	424.0	191.7	10.1
Carryover, July 31, 1964.....	459.4	179.4	118.3	7.1

¹ Includes flour in terms of wheat, rolled oats and oatmeal in terms of oats, malt and pot and pearl barley, and rye flour in terms of rye. ² Fewer than 50,000 bu. ³ Includes bagged wheat flour in terms of wheat, rolled oats and oatmeal in terms of oats, malt and pot and pearl barley, and rye flour and meal in terms of rye. ⁴ Includes human food, seed requirements, industrial uses in handling and animal feed.

19.—Production, Imports, Exports and Domestic Use of Wheat, Crop Years Ended July 31, 1959-64

(Millions of bushels)

Item	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64
Carryover, Aug. 1.....	648.5	588.0	599.6	607.8	391.1	487.2
Production.....	398.1	445.1	518.4	283.4	565.6	723.4
Imports.....	1	1	1	1	1	1
Totals, Supply.....	1,046.5	1,033.1	1,118.0	891.2	956.6	1,210.7
Exports ²	294.5	277.3	353.2	358.0	331.2	594.5
Domestic use.....	164.0	156.2	156.9	142.2	138.1	156.7
Totals, Disposition.....	458.5	433.5	510.1	500.2	469.4	751.3
Carryover, July 31.....	588.0	599.6	607.8	391.1	487.2	459.4

¹ Fewer than 50,000 bu.² Includes bagged seed wheat and wheat flour in terms of wheat.

Miscellaneous Grain Trade Statistics.—Grain Handled at Eastern Elevators.—

Total receipts of the five major grains at eastern elevators in the 1963-64 crop year amounted to 501,534,995 bu., 63 p.c. greater than in 1962-63. Shipments totalled 550,896,888 bu., 89 p.c. larger than in 1962-63.

20.—Canadian Grain Handled at Eastern Elevators, Crop Years Ended July 31, 1960-64

NOTE.—Figures for the crop years ended 1922-59 are given in the corresponding table of previous Year Books beginning with the 1931 edition.

Item and Crop Year	Wheat	Oats	Barley	Rye	Flaxseed	Total Grain
	bu.	bu.	bu.	bu.	bu.	bu.
Receipts—						
1959-60.....	273,525,714	32,442,882	36,293,125	1,345,336	6,989,980	350,597,037
1960-61.....	283,713,889	32,686,125	34,139,873	1,305,521	6,010,008	357,855,416
1961-62.....	243,025,206	18,252,519	21,412,213	3,202,174	7,197,612	293,089,724
1962-63.....	244,953,613	30,096,077	21,431,674	3,692,938	7,786,039	307,960,341
1963-64.....	425,500,798	34,575,280	31,431,415	2,726,233	7,301,269	501,534,995
Shipments—						
1959-60.....	254,448,048	33,411,003	37,260,454	1,413,050	7,182,791	333,715,346
1960-61.....	287,810,455	30,785,810	31,288,234	1,200,616	6,086,236	357,171,351
1961-62.....	258,787,935	19,494,745	23,530,370	3,227,310	7,098,689	312,139,049
1962-63.....	229,459,107	29,294,945	21,984,624	3,432,627	7,639,856	291,811,159
1963-64.....	474,419,205	35,481,811	31,076,245	2,658,662	7,260,962	550,896,888

Lake Shipments of Grain.—The 1961 navigation season opened at the Canadian Lake-head on Apr. 2 and closed on Dec. 14. During the season, total vessel shipments of wheat, oats, barley, rye, flaxseed, buckwheat, peas and rapeseed amounted to 440,439,000 bu., 26 p.c. more than the 348,446,000 bu. shipped during the 1963 navigation season, which opened on Apr. 19 and closed on Dec. 19, the latest closing since the early 1920's.

**21.—Lake Shipments of Canadian Grain from Fort William-Port Arthur,
Navigation Seasons 1963 and 1964**

Grain	1963				1964			
	To Canadian Ports	To U.S. Ports	To Foreign Ports	Total Shipments	To Canadian Ports	To U.S. Ports	To Foreign Ports	Total Shipments
Wheat.....bu.	241,882,665	1,020,857	8,182,992	251,086,514	342,838,180	657,020	5,804,573	349,299,773
Oats.....“	34,508,681	460,660	7,509,482	42,478,823	32,590,340	—	968,389	33,558,729
Barley.....“	34,310,518	6,533,403	2,857,645	43,701,566	31,558,158	7,594,650	3,557,717	42,710,525
Rye.....“	1,735,903	770,066	1,219,446	3,725,415	1,185,785	2,012,301	1,724,242	4,922,328
Flaxseed.....“	5,551,317	—	1,807,735	7,359,052	6,589,060	—	2,924,342	9,513,402
Buckwheat....“	85,321	—	—	85,321	282,722	—	91,779	374,501
Peas.....“	—	—	9,515	9,515	—	—	—	—
Rapeseed.....“	—	—	—	—	—	—	59,359	59,359
Totals.....bu.	318,074,405	8,784,986	21,586,815	348,446,206	415,044,245	10,263,971	15,130,401	440,438,617
Sunflower seed.lb.	—	—	—	—	—	—	2,613,500	2,613,500
Sample grain...“	20,625,865	—	—	20,625,865	7,235,070	—	—	7,235,070
Screenings.....ton	43,412	—	15,318	58,730	105,381	—	64,454	169,835

Wheat Flour.—Production of wheat flour in the crop year 1963-64 amounted to 50,104,000 cwt., about 41 p.c. greater than in the previous crop year. Similarly, wheat milled for flour at 111,671,000 bu. was 42 p.c. higher than during 1962-63. Of the latter, about 101,634,000 bu. were Western Canadian spring wheat (other than Durum) and the remainder consisted of Ontario winter wheat, Durum and 'other'. Based on a daily operating potential of some 178,000 cwt., utilization of milling capacity averaged 94.3 p.c. in 1963-64 compared with 70.0 p.c. in the preceding year. Exports of wheat flour during the 1963-64 crop year amounted to 23,874,000 cwt., more than double the amount in 1962-63.

**22.—Wheat Milled for Flour, and Production and Exports of Wheat Flour, Five-Year
Averages 1940-60 and Crop Years Ended July 31, 1961-64**

Crop Year (Aug. 1—July 31)	Wheat Milled for Flour	Wheat Flour Production	Wheat Flour Exports	
			Amount	P.C. of Production
	'000 bu.	cwt.	cwt.	
Av. 1940-41 — 1944-45	99,705	43,908,245	23,699,546	54.0
Av. 1945-46 — 1949-50	107,330	47,011,540	25,819,721	54.9
Av. 1950-51 — 1954-55	100,446	43,847,894	21,812,041	49.7
Av. 1955-56 — 1959-60	90,148	39,752,589	16,349,155	41.1
1960-61	89,731	39,914,644	15,513,836	38.9
1961-62	88,241	39,539,651	13,892,676	35.1
1962-63	78,789	35,505,220	11,854,458	33.4
1963-64	111,671	50,103,569	23,873,978	47.6

Subsection 2.—Livestock Marketings*

The 2,869,834 cattle marketed and graded through stockyards and packing plants in 1964 exceeded by 12 p.c. the number so marketed in 1963. Choice and Good grades combined accounted for 54 p.c. of total gradings compared with 52 p.c. in the previous year. This quality improvement resulted from a continued expansion of feed-lot finishing of cattle in Canada and a reduction in the number of feeder cattle exported alive to the United States. The average slaughtered weight of cattle was 542.1 lb., about the same as in 1963. Marketings of calves were also well above those of the previous year.

Hogs marketed at inspected and approved packing plants during 1964 numbered 7,281,644, an output exceeded only by sales in 1944 and 1959. Quality continued to improve, grade A accounting for 39 p.c. of the total gradings compared with 38 p.c. in 1963 and 36 p.c. in 1962. The number of sheep and lamb carcasses graded in 1964 was 436,490; the reduction of 3 p.c. from 1963 continued the declining trend of the sheep industry that has been in evidence over the past several years.

* More detailed information is available from DBS annual report *Livestock and Animal Products Statistics* (Catalogue No. 23-203), and the Canada Department of Agriculture publication *Livestock Market Review*. Statistics of livestock and poultry production and disappearance are given on pp. 485-490.

23.—Livestock Marketed at Stockyards and Packing Plants, by Grade, 1960-64

(Exclusive of Newfoundland)

Livestock	1960	1961	1962	1963	1964
	No.	No.	No.	No.	No.
Cattle	2,322,626	2,532,248	2,493,814	2,567,475	2,869,834
Steers—					
Choice.....	431,697	511,744	476,883	618,100	695,798
Good.....	238,920	271,077	231,158	241,796	289,093
Medium.....	172,080	163,484	160,971	155,543	172,691
Common.....	51,648	55,603	56,404	51,916	74,095
Heifers—					
Choice.....	100,818	116,670	101,667	113,706	137,161
Good.....	106,436	104,101	105,913	103,383	131,066
Medium.....	116,918	106,642	112,796	107,274	115,452
Common.....	57,737	57,596	56,673	50,095	59,495
Fed calves.....	97,250	85,845	82,442	63,263	49,435
Cows.....	548,412	566,045	642,781	590,797	629,904
Bulls.....	71,079	74,045	69,515	60,754	65,486
Feeder steers.....	267,209	323,932	307,883	323,417	355,879
Stock and feeder cows and heifers.....	62,422	95,464	88,728	87,431	94,339
Calves	864,928	918,390	984,237	916,068	983,616
Veal—					
Good and choice.....	158,069	173,071	211,444	202,602	223,489
Common and medium.....	484,632	423,613	431,041	424,217	470,700
Grass.....	60,674	51,196	48,676	36,850	26,908
Stocker.....	161,553	271,110	293,076	252,399	262,519
Hog Carcass Gradings	6,764,196	6,448,956	6,593,945	6,520,828	7,281,644
"A".....	2,064,623	2,105,855	2,239,956	2,384,686	2,726,771
"B".....	3,141,647	2,917,488	2,947,274	2,882,431	3,200,876
"C".....	724,139	613,412	543,769	494,635	536,025
"D".....	46,726	39,306	47,597	37,159	38,541
Heavy.....	222,683	212,903	216,085	227,475	229,359
Extra heavy.....	78,579	77,960	77,472	78,938	78,574
Light.....	198,771	152,966	168,171	135,400	160,744
Sows.....	231,753	278,565	240,253	234,302	267,336
Ridgling and stags.....	55,225	50,503	53,368	45,452	51,818
Lambs and Sheep Graded Alive	479,985	442,299	72,744	64,419	57,663
Lamb and Sheep Carcass Gradings	72,233	161,115	499,279 ¹	450,501	436,490

¹ Lamb carcasses.

24.—Livestock Marketed at Public Stockyards, Packing Plants and Direct for Export, by Province, 1964

(Exclusive of Newfoundland)

Livestock	Maritime Provinces	Quebec	Ontario	Manitoba	Saskat- chewan	Alberta	British Columbia	Total
	No.	No.	No.	No.	No.	No.	No.	No.
Cattle	42,076	140,122	946,245	289,891	539,226	967,878	62,985	2,988,423
Totals to stockyards....	966	78,158	457,308	185,452	323,237	502,754	8,220	1,556,095
Direct to packers.....	34,484	60,294	443,658	103,748	181,333	449,554	40,068	1,813,739
Direct for export.....	6,626	1,670	45,178	526	17,131	7,057	5,547	83,735
Country points in other provinces ¹	—	—	101	165	17,525	8,513	8,550	34,854
Calves	14,949	336,896	261,447	109,281	189,931	219,156	19,359	1,151,019
Totals to stockyards....	2,968	87,013	107,300	84,327	115,617	122,111	2,472	521,808
Direct to packers.....	10,815	228,740	131,175	22,934	12,335	47,358	8,451	461,808
Direct for export.....	895	21,143	22,971	853	7,484	312	813	54,471
Country points in other provinces ¹	271	—	1	1,167	54,495	49,375	7,623	112,932
Hogs	197,525	1,600,081	2,813,414	582,151	508,406	1,554,404	29,304	7,285,315
Totals to stockyards....	2	31,751	452,245	58,270	49,739	94,975	—	686,982
Direct to packers.....	197,142	1,568,330	2,357,991	523,848	458,664	1,459,389	29,298	6,594,662
Direct for export.....	381	—	3,208	33	3	40	6	3,671
Sheep and Lambs	26,822	48,978	143,619	32,784	62,430	173,376	35,881	523,890
Totals to stockyards....	41	1,819	77,535	11,769	21,607	27,199	514	140,484
Direct to packers.....	26,778	47,155	65,839	20,547	32,310	129,287	31,711	353,627
Direct for export.....	3	4	245	—	113	8,462	920	9,747
Country points in other provinces ¹	—	—	—	468	8,400	8,428	2,736	20,032
Total Inward Move- ment ²								
Cattle.....	46	2,790	167,341	34,874	68,339	193,396	1,375	468,161
Calves.....	1	972	224,299	5,137	18,653	85,972	490	335,524
Sheep and lambs.....	—	365	22,775	2,659	542	6,872	—	33,213

¹ Livestock billed through stockyards to country points outside province of origin. ² Movement to farms from stockyards and plants, and shipments on through-billings from country points in one province to country points in another province.

Section 3.—Warehousing and Cold Storage

The available statistics on warehousing, previously carried under the heading of Warehousing and Cold Storage, include statistics of the licensed storage of grain; cold storage facilities without which perishable foods such as meats, dairy products, fish and fruits could not be exchanged or distributed on a wide scale, and stocks of food commodities on hand in dairy factories and cold storage warehouses at certain times of the year; storage of petroleum and petroleum products; public and customs warehouses; and bonded warehouses, which specialize in the storage of tobacco and alcoholic liquors and are under the strict surveillance of Federal Government excise officers.

In this issue of the Year Book, only licensed grain storage data and statistics of the warehousing industry are carried. Reference may be made to the 1963-64 Year Book, pp. 867-871 for information on the other types of storage and later statistics may be obtained from the following sources: cold storage and storage of food—Economics Division of the Canada Department of Agriculture; storage of petroleum and petroleum products—Public Utilities Section of the Public Finance and Transportation Division, DBS; customs warehouses—Port Administration Branch of the Department of National Revenue; and bonded warehousing—Industry Statistics Section of the Industry Division, DBS.

Subsection 1.—Licensed Grain Storage

Total grain storage capacity in Canada, licensed under the provisions of the Canada Grain Act by the Board of Grain Commissioners for Canada, amounted to 664,321,000 bu. at Dec. 1, 1963, representing an increase of 16,615,000 bu. over the capacity at Dec. 1, 1962; higher storage capacity became available during the year at the following positions: 4,050,000 bu. in western country elevators; 4,680,000 bu. in Fort William-Port Arthur; and 8,010,000 bu. in lower St. Lawrence ports. The movement of grain in and out of storage during the crop year 1963-64 is outlined at pp. 870-875. Table 25 gives the amounts in storage at three dates during the year. At July 31, 1964, 61.8 p.c. of the licensed storage capacity was occupied as compared with 78.8 p.c. at the same date of 1963.

**25.—Licensed Grain Storage Capacity and Grain in Store, Crop Years
1962-63 and 1963-64**

Crop Year and Storage Position	Licensed Storage Capacity	Canadian Grain in Licensed Storage				Proportion of Licensed Storage Capacity Occupied		
		Dec. 1, 1962	Nov. 28, 1962	Apr. 3, 1963	July 31, 1963	Nov. 28, 1962	Apr. 3, 1963	July 31, 1963
		'000 bu.	'000 bu.	'000 bu.	'000 bu.	p.c.	p.c.	p.c.
1962-63								
Western country.....	368,410	249,315	254,881	316,233	67.7	69.2	85.8	
Interior, private and mill.....	18,034	11,100	11,108	10,606	61.6	61.6	58.8	
Interior, terminals.....	18,100	8,361	6,706	5,930	46.2	37.0	32.8	
Pacific Coast.....	24,846	17,092	14,966	16,470	68.8	60.2	66.3	
Churchill.....	5,000	4,845	4,857	4,159	96.9	97.1	83.2	
Fort William-Port Arthur.....	101,741	40,595	90,545	79,675	39.9	89.0	78.3	
Georgian Bay and upper Lake ports..	36,566	28,286	20,993	29,170	77.4	57.4	79.8	
Lower Lake and upper St. Lawrence ports.....	20,100	10,728	10,128	10,755	53.4	50.4	53.5	
Lower St. Lawrence ports.....	47,680	36,947	22,408	32,350	77.5	47.0	67.8	
Maritime ports (excl. Newfoundland).. <td>7,229</td> <td>5,684</td> <td>2,221</td> <td>4,734</td> <td>78.6</td> <td>30.7</td> <td>65.5</td>	7,229	5,684	2,221	4,734	78.6	30.7	65.5	
Totals, 1962-63.....	647,706	412,955	438,813	510,080	63.8	67.7	78.8	
	Dec. 1, 1963	Nov. 27, 1963	Apr. 1, 1964	July 31, 1964	Nov. 27, 1963	Apr. 1, 1964	July 31, 1964	
	'000 bu.	'000 bu.	'000 bu.	'000 bu.	p.c.	p.c.	p.c.	
1963-64								
Western country.....	372,460	265,587	271,567	274,794	71.3	72.9	73.8	
Interior, private and mill.....	17,908	9,854	10,742	9,617	55.0	60.0	53.7	
Interior, terminals.....	18,100	6,871	6,494	5,668	38.0	35.9	31.3	
Pacific Coast.....	24,846	12,359	14,981	14,886	49.7	60.3	59.9	
Churchill.....	5,000	4,759	4,759	4,759	95.2	95.2	95.2	
Fort William-Port Arthur.....	106,421	56,859	93,192	72,936	53.4	87.6	68.5	
Georgian Bay and upper Lake ports..	36,566	26,609	6,721	5,545	72.8	18.4	15.2	
Lower Lake and upper St. Lawrence ports.....	20,100	11,057	5,951	7,048	55.0	29.6	35.1	
Lower St. Lawrence ports.....	55,690	27,652	12,752	13,414	49.7	22.9	24.1	
Maritime ports (excl. Newfoundland).. <td>7,229</td> <td>3,667</td> <td>4,194</td> <td>1,571</td> <td>50.7</td> <td>58.0</td> <td>21.7</td>	7,229	3,667	4,194	1,571	50.7	58.0	21.7	
Totals, 1963-64.....	664,321	425,274	431,353	410,238	61.0	64.9	61.8	

Subsection 2.—The Public Warehousing Industry

The summary statistics of the warehousing industry presented in Table 26 cover the operations of the majority of firms offering general merchandise and refrigerated storage facilities to the public. Associations and organizations such as co-operatives operating warehouses or storages for their own members are not included nor are packing houses and other firms operating storage facilities in connection with their respective businesses. Small food lockers are not included except where they may be part of a general warehousing business.

26.—Summary Statistics of Warehousing of General Merchandise and Refrigerated Goods, 1960-64

Item	1960	1961	1962	1963	1964
Companies reporting..... No.	111	108	104	138	152
Investment in land, warehouses, etc..... \$	64,896,124	68,178,081	65,173,924	83,930,051	90,680,374
Warehousing Facilities—					
General merchandise..... cu. ft.	50,485,820	55,527,385	53,723,491	77,108,607	83,047,067
Refrigerated goods..... "	30,653,893	32,058,659	34,918,978	45,259,631	44,620,942
Revenue—					
Storage..... \$	16,335,325	15,931,824	15,906,836	20,883,783	22,471,734
Cartage and moving..... \$	9,883,741	8,953,590	7,287,727	6,428,081	9,113,060
Miscellaneous..... \$	6,028,315	6,547,492	6,773,633	9,394,843	10,845,159
Total Revenue..... \$	32,247,381	31,432,906	29,968,196	36,706,707	42,429,953
Operating expenses..... \$	29,496,885	29,314,749	27,784,202	33,679,586	39,657,425
Net Operating Revenue..... \$	2,750,496	2,118,157	2,183,894	3,027,121	2,772,528
Employees, average..... No.	3,734	3,560	3,137	4,033	4,403
Salaries and wages..... \$	15,418,560	14,573,924	14,141,772	17,279,113	20,034,223
Motor Vehicles—					
Trucks..... No.	969	783	634	602	652
Tractors..... "	173	158	148	130	165
Trailers and semi-trailers..... "	228	221	206	158	253

¹ Includes storage space for household goods amounting to 1,574,600 cu. ft. in 1960; 1,608,700 cu. ft. in 1961; 997,900 cu. ft. in 1962; 900,000 cu. ft. in 1963; and 1,047,090 cu. ft. in 1964.

Section 4.—Co-operative Organizations

Canadian co-operative activities continue to be dominated by marketing and purchasing associations; the revenue of such associations amounted to \$1,592,200,000 for the year ended July 31, 1963. Of that amount, sales of products and supplies accounted for \$1,572,000,000, the remainder being receipts for services provided by the co-operatives such as grinding, chopping, trucking and revenue for rent, interest, dividends and commissions.

Membership in marketing and purchasing associations was slightly higher in 1963 than in 1962 but the number of associations decreased from 1,877 to 1,632, a few through amalgamations but most of them through reclassification to the production type of co-operative which is included with service associations. Total sales of farm products amounted to \$1,109,800,000 in 1963, an increase of 20 p.c. over the previous year, and sales of supplies increased 9 p.c., resulting in an increase in total business of 16 p.c. All provinces reported higher sales of products but the largest increases were in Saskatchewan and Manitoba; in Alberta, sales amounting to about \$6,000,000, which had been classed as marketing in 1962, were changed over to the service group in 1963. Saskatchewan accounts for the greatest value of farm products marketed co-operatively; sales in that province totalled \$355,600,000 in 1963, of which amount grain and seed sales made up 68 p.c. Of the total sales for Canada, grain and seed sales accounted for 47 p.c., dairy product sales for 22 p.c., livestock sales for 11 p.c., and sales of eggs and poultry and fruit and vegetables for most of the remainder. Members' equity in marketing and purchasing co-operatives increased by \$12,600,000 in 1963 and liabilities to the public by \$87,600,000.

Wholesale co-operatives are federations of local co-operatives which act as central marketing agencies for farm products and as wholesalers of farm supplies, machinery and

consumer goods. Such associations reported assets of \$119,300,000 in 1963, of which members' equity represented 34 p.c., and sales of supplies and farm products of \$358,300,000, an increase of 6 p.c. over 1962.

Service co-operatives, which numbered 1,006 in 1963, provide a wide range of functions such as rural electrification, medical insurance, transportation, grazing, custom grinding, seed cleaning, operation of farm machinery and restaurant operation. Membership in these associations rose from 297,616 in 1962 to 303,624 in 1963 and assets from \$106,700,000 to \$117,800,000, mainly as a result of the reclassifications mentioned above. Fishermen's co-operatives operate in all provinces and in 1963 reported a membership of 9,846, sales of fish amounting to \$20,200,000 and sales of supplies amounting to \$2,000,000; comparable figures for 1962 were 9,239, \$18,400,000 and \$1,500,000, respectively.

Eskimo co-operatives operating in the Canadian North have increased rapidly in number and in diversity of service (see p. 215). Fifteen societies reported a membership of 401 in 1963, sales of \$410,834, share capital of \$114,930, and reserves of \$70,210. Four new societies have since been formed.

**27.—Summary Statistics of Co-operative Marketing and Purchasing Associations,
Crop Years Ended July 31, 1959-63 and by Province, 1962 and 1963**

Year and Province	Associations	Shareholders or Members	Sales of Products	Sales of Merchandise	Total Business ¹
	No.	No.	\$'000	\$'000	\$'000
1959.....	1,982	1,290,462	963,330	332,943	1,315,167
1960.....	1,934	1,319,187	973,958	368,090	1,362,596
1961.....	1,914	1,324,270	1,019,819	391,761	1,430,197
1962.....	1,877	1,287,562	928,502	423,302	1,372,605
1963.....	1,632	1,305,880	1,109,800	462,200	1,592,200
Province, 1962 and 1963					
Newfoundland.....1962	56	9,105	57	5,782	6,147
.....1963	45	9,372	—	5,800	5,800
Prince Edward Island.....1962	19	6,090	2,915	4,717	7,745
.....1963	20	9,602	4,900	5,000	10,100
Nova Scotia.....1962	84	25,952	16,032	19,806	36,446
.....1963	81	25,924	17,300	19,300	37,100
New Brunswick.....1962	56	15,033	9,780	10,526	20,560
.....1963	54	15,472	10,600	11,500	22,400
Quebec.....1962	548	93,545	123,705	101,331	227,794
.....1963	492	91,830	137,700	105,900	245,400
Ontario.....1962	265	112,262	89,171	78,257	171,152
.....1963	239	114,463	96,200	81,700	181,600
Manitoba.....1962	108	169,578	93,424	30,520	126,413
.....1963	115	179,552	134,200	34,900	171,900
Saskatchewan.....1962	450	460,392	275,209	84,646	366,560
.....1963	340	461,540	355,600	95,600	458,100
Alberta.....1962	192	221,910	185,782	42,007	229,881
.....1963	150	221,918	183,000	49,700	234,000
British Columbia.....1962	93	52,620	60,091	30,215	91,560
.....1963	90	49,929	66,700	32,200	101,100
Interprovincial.....1962	6	121,075	72,336	15,495	88,347
.....1963	6	126,278	103,600	20,600	124,700

¹ Includes other revenue.

**28.—Products Handled by Marketing and Purchasing* Co-operatives, Crop Years Ended
July 31, 1962 and 1963**

Product	1962		1963	
	Associations ¹	Value of Sales	Associations ¹	Value of Sales
	No.	\$'000	No.	\$'000
Marketing	902	928,502	736	1,109,800
Dairy products.....	362	240,166	330	253,200
Fruits and vegetables.....	108	38,464	97	40,400
Grains and seeds.....	77	386,492	69	524,400
Livestock and livestock products.....	334	204,019	255	225,900
Eggs and poultry.....	133	43,494	121	49,800
Honey.....	8	3,968	7	3,900
Tobacco.....	3	2,017	7	1,400
Wool.....	10	1,491	4	1,700
Fur.....	16	735	11	800
Forest products.....	37	3,054	23	2,400
Miscellaneous.....	68	4,602	18	5,900
Merchandising	1,456	423,302	1,373	462,200
Food products.....	813	114,605	733	124,300
Clothing and home furnishings.....	525	13,411	462	15,400
Hardware.....	786	32,088	726	33,000
Petroleum products and auto accessories.....	670	71,972	656	79,800
Feed, fertilizer and spray material.....	1,005	131,859	939	141,800
Machinery and equipment.....	272	19,344	289	25,000
Building material.....	516	24,510	317	22,400
Miscellaneous.....	558	15,513	562	20,500
Totals	2,358	1,351,804	2,109	1,572,000

¹ Duplication exists as some associations market more than one product.

Section 5.—Interprovincial Freight Movements*

Statistics relating to interprovincial freight movements are difficult to collect since there are no controls over, or barriers to, such trade. Interprovincial freight traffic statistics are available for loadings and unloadings of goods carried by rail, water, motor transport and pipeline.

Details of railway freight movement are confined to tons loaded and unloaded by province and contain a certain amount of import and export of goods shipped by water. The figures given in Table 29, however, do not give a precise measure of total interprovincial freight movement by rail; they indicate only the net interprovincial movement of railway freight, which is but one aspect of that trade. For water-borne traffic, Table 30 shows tonnages of all cargoes unloaded at Canadian ports in both interprovincial and intraprovincial trade, by province of origin. Interprovincial and international traffic carried by Canadian registered trucks is shown in Table 31. Pipeline statistics are given in the Transportation Chapter, pp. 823-825.

* Revised in the Transportation Section, Public Finance and Transportation Division, Dominion Bureau of Statistics.

29.—Railway Revenue Freight Movement, by Province, 1963 and 1964

(Class I and II railways operating in Canada)

Province	Loaded		Received from U.S.A. Rail Connections		Totals Carried	
	1963	1964	1963	1964	1963	1964
	tons	tons	tons	tons	tons	tons
Newfoundland.....	1,549,526	1,625,333	—	—	1,549,526	1,625,333
Prince Edward Island..	357,975	377,997	—	—	357,975	377,997
Nova Scotia.....	11,354,802	11,498,836	—	—	11,354,802	11,498,836
New Brunswick.....	3,966,593	4,607,028	206,593	191,816	4,173,186	4,798,844
Quebec.....	41,688,845	51,787,588	2,618,629	2,574,598	44,307,474	54,362,186
Ontario.....	39,387,294	46,409,518	17,848,527	19,422,652	57,235,821	65,832,170
Manitoba.....	7,290,910	7,702,602	347,887	395,604	7,638,797	8,098,206
Saskatchewan.....	16,173,480	19,240,440	190,299	179,375	16,363,779	19,419,815
Alberta.....	12,427,165	16,303,561	190,035	216,241	12,617,200	16,519,802
British Columbia.....	13,563,991	14,516,098	1,177,333	1,287,278	14,741,324	15,803,376
Totals.....	147,760,581	174,069,001	22,579,303	24,267,561	170,339,884	198,336,565
	Unloaded		Delivered to U.S.A. Rail Connections		Totals Terminated	
	1963	1964	1963	1964	1963	1964
	tons	tons	tons	tons	tons	tons
Newfoundland.....	1,776,597	1,920,072	—	—	1,776,597	1,920,072
Prince Edward Island..	454,476	602,872	—	—	454,476	602,872
Nova Scotia.....	9,972,934	10,405,389	—	—	9,972,934	10,405,389
New Brunswick.....	4,134,076	5,087,214	392,424	446,756	4,526,500	5,533,970
Quebec.....	40,945,030	51,829,735	5,099,131	5,033,373	46,044,161	56,863,108
Ontario.....	48,515,141	56,491,138	20,817,798	23,293,131	69,332,939	79,784,269
Manitoba.....	6,220,394	6,871,866	881,284	974,815	7,101,678	7,846,181
Saskatchewan.....	4,370,127	3,794,952	1,846,773	1,837,355	6,216,900	5,632,307
Alberta.....	6,510,785	7,016,752	37,623	90,493	6,548,408	7,107,245
British Columbia.....	15,654,097	18,709,794	2,096,300	2,305,254	17,750,397	21,015,048
Totals	138,553,657	162,729,784	31,171,333	33,980,677	169,724,990	196,710,461

30.—Tonnage of Cargo Loaded and Unloaded at Canadian Ports in Interprovincial Trade, by Province, 1963 and 1964

Year and Province of Unloading	Province of Loading								Canada
	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	B.C. and N.W.T.	
	tons	tons	tons	tons	tons	tons	tons	tons	tons
1963									
Nfld.....	947,960	13,538	892,395	92,430	185,419	7,695	—	3,315	2,142,752
P.E.I.....	29	—	147,656	74,691	34,814	7,212	—	—	264,402
N.S.....	868,848	18,986	184,162	279,938	219,405	218,129	—	922	1,790,390
N.B.....	3,787	35,368	590,995	171,784	303,364	13,658	—	1,618	1,120,574
Que.....	183,512	21,301	1,619,528	295,305	4,833,839	7,028,171	12,057	14,078	14,007,791
Ont.....	25,129	—	228,082	—	2,071,336	10,314,511	2,817	—	12,641,875
Man.....	—	—	—	—	14	—	—	145	159
B.C. and N.W.T.....	706	—	1,191	—	39,559	—	1,427	14,108,930	14,151,813
Totals, 1963...	2,029,971	89,193	3,664,009	914,148	7,687,750	17,589,376	16,301	14,129,008	46,119,756
1964									
Nfld.....	827,652	12,152	985,287	102,972	179,626	15,234	—	5,585	2,128,508
P.E.I.....	859	—	212,290	123,515	2,923	7,658	—	—	347,245
N.S.....	755,272	33,055	269,950	370,700	382,709	217,677	—	1,959	2,031,322
N.B.....	5,075	29,697	620,013	255,868	270,549	20,900	—	3,581	1,185,633
Que.....	280,997	30,827	1,231,270	416,593	5,583,160	9,661,325	8,391	18,234	17,230,797
Ont.....	13,469	—	415,659	—	1,978,738	11,458,181	4,266	—	13,870,313
Man.....	—	—	—	—	1,740	11	424	82	2,257
B.C. and N.W.T.....	12,592	—	—	—	32,744	—	3,118	15,020,254	15,068,708
Totals, 1964...	1,895,916	105,731	3,734,469	1,249,648	8,432,189	21,380,986	16,199	15,049,645	51,864,783

31.—Interprovincial and International Traffic by Canadian Registered Trucks, 1962 and 1963

Year and Province or Territory	To— Atlantic Provinces	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	United States	Total
	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons
1962										
From—										
Atlantic Provinces.....	—	63	17	—	—	—	—	—	145	225
Quebec.....	69	—	1,036	35	—	80	—	—	406	1,626
Ontario.....	27	1,120	—	164	25	120	18	—	699	2,173
Manitoba.....	—	36	250	—	264	126	5	—	31	712
Saskatchewan.....	—	2	6	324	—	91	8	—	12	443
Alberta.....	—	82	62	110	193	—	331	42	24	844
British Columbia.....	—	6	33	6	15	268	—	107	508	943
Yukon and Northwest Territories.....	—	—	—	—	—	6	30	—	—	36
United States.....	37	195	676	19	10	34	127	—	—	1,098
Totals, 1962.....	133	1,504	2,080	658	507	725	519	149	1,825	8,100
1963										
From—										
Atlantic Provinces.....	—	49	5	—	—	—	—	—	165	219
Quebec.....	86	—	1,121	40	—	46	7	—	417	1,717
Ontario.....	8	1,196	—	126	20	95	11	—	513	1,969
Manitoba.....	—	38	198	—	204	122	7	—	13	582
Saskatchewan.....	—	4	4	291	—	79	3	—	27	408
Alberta.....	—	62	64	87	193	—	453	48	87	994
British Columbia.....	1	14	45	10	31	377	—	89	180	747
Yukon and Northwest Territories.....	—	—	—	—	—	6	28	—	—	34
United States.....	31	358	568	20	12	17	88	—	—	1,094
Totals, 1963.....	126	1,721	2,005	574	460	742	597	137	1,402	7,764

PART II.—GOVERNMENT AIDS TO AND CONTROL OF DOMESTIC TRADE

Section 1.—Controls Affecting the Marketing of Farm Products

Subsection 1.—Control of the Grain Trade

The agencies exercising control of the grain trade in Canada include the Board of Grain Commissioners for Canada which, since 1912, has administered the provisions of the Canada Grain Act, and the Canadian Wheat Board which operates under the Canadian Wheat Board Act, 1935.

The Board of Grain Commissioners for Canada.*—The Board of Grain Commissioners was established in 1912 under the authority of the Canada Grain Act, 1912 (RSC 1952, cc. 25 and 308 and amendments). It is a quasi-judicial and administrative body of three—a chief commissioner and two commissioners—reporting to the Minister of Agriculture.

The Canada Grain Act has been called the Magna Charta of the Canadian grain trade or, more particularly, of the Canadian farmer, and the Board's chief duties are to ensure that the rights conferred on the different parties by the provisions of the Act are properly protected. Transportation of grain is restricted except from or to licensed elevators, and restriction is placed on the use of established grade names. The Act does not provide for any control or supervision of grain exchanges and the Board of Grain Commissioners has no power or duties in the matter of grain prices.

The Board manages and operates, under semi-public terminal licences, the Canadian Government elevators situated at Moose Jaw and Saskatoon, Sask., Lethbridge, Edmonton and Calgary, Alta., and Prince Rupert, B.C. The Executive Offices of the Board and other principal offices are situated at Winnipeg, Man., but branch offices are maintained at numerous points from Montreal in the east to Victoria in the west. Total personnel is approximately 1,100, including elevator staff.

On a fee basis, the Board provides official inspection, grading and weighing of grain, and registration of warehouse receipts. All operators of elevators in Western Canada and of elevators in Eastern Canada that handle western-grown grain for export, as well as all parties operating as grain commission merchants, track buyers of grain, or as grain dealers, are required to be licensed by the Board annually and to file security by bond or otherwise as a guarantee for the performance of all obligations imposed upon them by the Canada Grain Act or by the regulations of the Board.

To protect the rights of the different parties, the Board has jurisdiction to inquire into and is empowered to give direction regarding any matter relating to the grading or weighing of grain; deductions made from grain for dockage; shortages on delivery of grain into or out of elevators; unfair or discriminatory operation of any elevator; refusal or neglect of any person to comply with any provision of the Canada Grain Act; and any other matter arising out of the performance of the duties of the Board.

In the Prairie Provinces the Board maintains four assistant commissioners—one in Alberta, two in Saskatchewan and one in Manitoba. These assistant commissioners investigate complaints of producers and inspect periodically the country elevators in their respective provinces; all elevators with their equipment and stocks of grain are subject at any time to inspection by officials of the Board.

The Board sets up, annually, Committees on Grain Standards and also appoints Grain Appeal Tribunals to give final decisions in cases where appeals are made against the grading of grain by the Board's inspection officials. To assist in maintaining the uniform quality of the top grades of Red Spring wheat handled through terminal elevators, the Canada Grain Act provides that wheat of these grades shall be stored with grain of like grade only.

* Prepared by W. J. MacLeod, Secretary of the Board of Grain Commissioners for Canada, Winnipeg, Man.

The Grain Research Laboratory, located at Winnipeg, is the main centre of research on the chemistry of Canadian grains. It is well staffed and equipped to provide the service required to help maintain and expand domestic and foreign markets for all types of grain. The Laboratory collects and tests samples of various crops to obtain information on the current quality of all grains shipped during the crop year. Fundamental research is also undertaken; the program is directed toward better understanding of what constitutes quality in cereal grains and toward improvement in the methods of assessing quality.

In addition to its duties under the Canada Grain Act, certain other duties are performed by the Board. Under the provisions of the Inland Water Freight Rates Act (RSC 1952, c. 153), the Board maintains records of rates for the carriage of grain from Fort William or Port Arthur, Ont., by lake or river navigation and is empowered to prescribe maximum rates for such carriage. Under the provisions of the Prairie Farm Assistance Act (RSC 1952, c. 213 as amended), the Board collects from licensees under the Canada Grain Act 1 p.c. of the purchase price of wheat, oats, barley, rye, flax and rapeseed purchased by such licensees.

The Canadian Wheat Board.*—The Canadian Wheat Board was established under the Canadian Wheat Board Act of 1935 for the purpose of “the marketing in an orderly manner, in interprovincial and export trade, of grain grown in Canada” and now operates under RSC 1952, c. 44 as amended. The Board accomplishes its objective through regulation and agreement. It owns no grain handling facilities but, by entering into agreements with the owners of these facilities, it attempts to bring about an orderly flow of grain through each of the steps involved in merchandising the grain from the producer to the domestic or overseas buyer.

In the selling of wheat, the Board utilizes the services of shippers and exporters. In its sales operations, the Board endeavours to meet the wishes of overseas buyers and, on occasion, enters into direct contracts. When an exporter completes an export sale, in his capacity as an agent of the Board, he is responsible for the transaction; he completes the transaction with the buyer and settles with the Board for the purchase of the wheat from the Board.

When the commercial storage facilities are inadequate to handle all the grain produced, it is necessary for the Board to regulate the flow of grain from the producer to these forward positions. The first step is accomplished by the use of producer's delivery permits issued annually by The Canadian Wheat Board. Every delivery of grain made to country elevators by a producer is entered in his permit book. By regulating the amount of grain delivered by the producer to the country elevator by the use of a quota system and, by apportioning shipping orders to country elevators according to the needs created by sales commitments, the Wheat Board regulates the amount of grain coming into the marketing channel.

The next step is the handling of the grain by the country elevator. The maximum charges for the handling and storing of the grain are set by the Board of Grain Commissioners, but the actual charges are subject to negotiation between the elevator companies and the Wheat Board.

The third step in the marketing process—transporting the grain from the country elevators to large terminal elevators in Eastern Canada, Churchill or on the West Coast—is carried out by the railways. The Wheat Board determines the kinds and grades of grain that are required at the different terminal destinations to meet its sales commitments and informs the elevator companies and the railways of these needs. The maximum tariffs are set by an agreement between the railways and the Government of Canada.

The fourth major step—storing and handling of the grain at terminal elevators—is done in privately or co-operatively owned elevators. Maximum charges are established for this service by the Board of Grain Commissioners.

* Revised by R. L. Kristjanson, Executive Assistant, The Canadian Wheat Board, Winnipeg, Man.

Subsection 2.—Controls Over Farm Products Other Than Grain*

The Government of Canada and provincial governments have, through legislation and in other ways, given marketing aids such as those related to research, education, information, inspection, grading and many other service measures of this type, designed to assist in making adjustments in marketing within agriculture and between agriculture and the remainder of the economy. Closely related is regulatory action designed to protect the consumer.

Producers have been concerned about another type of market control, namely that which will give either their organizations or a government agency influence over the price received. In a highly specialized commercial agriculture such as Canada now has, the producer is dependent on the price of his product for his livelihood. Canadian farmers have long attempted to obtain some measure of market control through voluntary organizations, mainly marketing co-operatives. All provinces have made provision for the incorporation of such co-operatives and most, if not all, have provided other assistance to them. In the federal field, the Agricultural Products Co-operative Marketing Act encourages marketing under a co-operative plan.

Other legislation provides for legal control over the marketing of agricultural products, either by a producers' board or a government agency. Legislation of this type includes that pertaining to milk control boards and to marketing boards, both discussed below. Measures pertaining to grain marketing have been reviewed in Subsection 1, pp. 885-886, and the Agricultural Stabilization Act, which provides price support for certain key products is discussed in the Agriculture Chapter, pp. 461-462.

Product Controls.—The federal and provincial departments of agriculture co-operate in establishing and enforcing grades of quality standards for various foods. Some control over size and type of containers used for distribution of agricultural products is exercised by the Canada Department of Agriculture and the Department of Trade and Commerce enforces regulations pertaining to weights and measures (see p. 894).

Controls related to health and sanitation in food handling are developed and enforced at all three levels of government—municipal, provincial and federal. Examples of provincial and municipal action include laws pertaining to the pasteurization of milk, inspection of slaughterhouses and sanitary standards in restaurants. At the federal level, inspection by the Health of Animals Branch of the Department of Agriculture of all meat carcasses that enter into interprovincial trade is required. The Food and Drug Directorate of the Department of National Health and Welfare has wide control over the composition of foods sold and over misleading advertising of foods and drugs.

Marketing Controls.—*The Agricultural Products Co-operative Marketing Act.*—In the late 1930's, the Federal Government decided to assist orderly marketing by encouraging the establishment of pools which would give to the producer the maximum sales return for his product, less a maximum margin for handling expenses agreed upon in advance. Thus, the Agricultural Products Co-operative Marketing Act and the Wheat Co-operative Marketing Act were passed in 1939. The latter was used in one year only but the Agricultural Products Co-operative Marketing Act, which covers the marketing of all agricultural products except wheat, has continuously served agricultural producers since 1939.

The purpose of this Act is to aid farmers in pooling the returns from sale of their products by guaranteeing initial payments and thus assisting in the orderly marketing of the product. The Government may undertake to guarantee a certain minimum initial payment to the producer at the time of delivery of the product, including a margin for handling; sales returns are made to the producer on a co-operative plan. The guaranteed initial payment may be up to a maximum of 80 p.c. of the average price paid to producers for the previous three years, the exact percentage to be recommended by the Minister of Agriculture who enters into an agreement with the selling agency for the product.

* Prepared in the Economics Branch of the Canada Department of Agriculture, Ottawa.

Agreements have been made under this Act pertaining to a wide variety of agricultural products. In 1963 the only agreement made was with respect to apples for processing.

Milk Control Legislation.—Most of the provinces enacted milk control legislation before 1940. Many of them finance these milk-control agencies out of public funds, others finance through the collection of licence fees and assessments from those engaged in the fluid milk industry, and some combine the two methods. Most milk-control agencies have authority to carry out some system of licensing which provides for the revocation of such licences if those engaged in the fluid milk business do not conform with the orders of the milk control board.

In all provinces with such boards, the milk control board sets the minimum price which distributors in specified markets may pay producers for Class I milk, that is, milk actually sold for fluid consumption. In Ontario and British Columbia, this minimum price is based on formulas. Most provinces also set either minimum or fixed wholesale and retail prices for fluid milk. The wholesale and retail prices are fixed in Prince Edward Island, Nova Scotia and Saskatchewan; minimum prices are established in New Brunswick, Quebec and Alberta. However, maximum but not minimum prices are set in Manitoba and no control is exercised over milk prices at the wholesale and retail levels in Ontario and British Columbia; in these three provinces some degree of price competition between store and home delivery sales has developed.

The powers given to or requirements made by milk control boards include: (1) authority to inquire into all matters pertaining to the fluid milk industry, to define market areas, to arbitrate disputes, to examine the books and records of those engaged in the industry, to issue and revoke licences, and to establish a price for milk, and (2) authority to require a bond from distributors, periodic reports from distributors, payments to be made to producers by a certain date each month, distributors to give statements to suppliers, distributors to give notice before ceasing to accept milk from any producer, producers to give notice before ceasing to deliver milk to any distributor, and the prohibition of distributors requiring capital investment from producers.

Thus, fluid milk controls are not only widespread but also numerous. They are generally considered to be administered in the public interest as well as in the interest of those who have regular opportunities to appear before the boards in connection with requests for price changes.

Producer Marketing Boards.—During the 1930's strong support developed for legislation whereby agricultural producers could exercise legal authority under certain conditions to control the marketing of their produce. The Natural Products Marketing Act of 1934 attempted to provide this power at the federal level but proved *ultra vires*. The Natural Products Marketing (British Columbia) Act 1936 was *intra vires* of provincial government powers and provided the model from which marketing board legislation has evolved in all ten provinces.

While marketing board legislation has been revised from time to time on the basis of experience and there are variations in detail from province to province, the same basic powers are given to producers in all provinces. These powers include authority for a duly constituted producer board to control the marketing of 100 p.c. of a specified commodity produced in a designated area. A producers' board, in at least some provinces, may set production quotas for each farmer. One producers' board may control the marketing of several related commodities and the designated area may be either the whole or part of a province. A producer vote is usually required to establish a producer marketing board whose powers are delegated either by a provincial marketing board, which has certain supervisory authority, or by the Lieutenant-Governor in Council.

The powers of a producers' board provided by provincial legislation are necessarily limited to intraprovincial trade. Under the Agricultural Products Marketing Act, the Federal Government may delegate to a marketing board with respect to interprovincial and export trade similar powers to those obtained with respect to intraprovincial trade

under provincial authority. This Act also gives the Governor in Council the right to authorize a provincial marketing board to impose and collect levies from persons engaged in the production and marketing of commodities controlled by it for the purposes of the board, the creation of reserves and equalization of returns.

In mid-1965 there were 80 such marketing boards organized in Canada, 49 of which were in the Province of Quebec and 16 in Ontario; each of the other provinces with the exception of Newfoundland had one or more boards. It is estimated that about one seventh of the 1963 farm cash income was received from sales made under the control of provincial marketing board plans, including the following commodities: hogs, certain dairy products, poultry, wool, tobacco, wheat, soybeans, sugar beets, potatoes, other vegetables, fruits, seed corn, white beans, honey, maple products and pulpwood. As at Oct. 31, 1964, 46 of these provincial boards had received an extension of powers for purposes of inter-provincial and export trade from the Federal Government. Seven boards had received authority with regard to seven commodities to collect levies in excess of administrative expenses.

Section 2.—Combinations in Restraint of Trade*

The purpose of Canadian anti-combines legislation is to assist in maintaining free and open competition as a prime stimulus to the achievement of maximum production, distribution and employment in a system of free enterprise. To this end, the legislation seeks to eliminate certain practices in restraint of trade that serve to prevent the nation's economic resources from being most effectively used for the advantage of all citizens.

By amendments that came into force on Aug. 10, 1960 (SC 1960, c. 45), all the provisions of the anti-combines legislation which previously had been divided between the Combines Investigation Act (RSC 1952, c. 314) and the Criminal Code were amended and consolidated in the Act. The substantive provisions now are contained in Sects. 2, 32, 33, 33A, 33B, 33C and 34 of the Combines Investigation Act. The Act was enacted in 1923 and was amended extensively in 1935, 1937, 1946, 1949, 1951 and 1952 as well as in 1960.

Sect. 32, generally speaking, forbids in Subsect. (1) combinations that prevent or lessen "unduly" competition in the production, manufacture, purchase, barter, sale, storage, rental, transportation or supply of an article of trade or commerce or in the price of insurance. Subsect. (1) derives from Sect. 411 of the Criminal Code which was enacted originally in 1889. Although Subsect. (2) provides that no person shall be convicted for participation in an arrangement relating only to such matters as the exchange of statistics or the defining of product standards, etc., Subsect. (3) provides that Subsect. (2) does not apply if the arrangement has lessened or is likely to lessen competition unduly in respect of prices, quantity or quality of production, markets or customers or channels of distribution, or if the arrangement "has restricted or is likely to restrict any person from entering into or expanding a business in a trade or industry". Subsect. (4) provides that, subject to Subsect. (5), no person shall be convicted for participation in an arrangement which relates only to the export trade. Subsect. (5) provides that Subsect. (4) does not apply if the arrangement has had or is likely to have harmful effects on the volume of export trade or on the businesses of Canadian competitors or on domestic consumers.

Sects. 2 and 33 make it an offence to participate in a merger that has or is likely to have the effect of lessening competition to the detriment or against the interest of the public. These Sections also make it an offence to participate in a monopoly that has been operated or is likely to be operated to the detriment or against the interest of the public.

Sect. 33A deals with what are commonly called "price discrimination" and "predatory price cutting". It provides that a supplier may not make a practice of discriminating among those of his trade customers who come into competition with one another by giving one a preferred price which is not available to another if the second is willing to buy in

* Revised by D. H. W. Henry, Director of Investigation and Research, Combines Investigation Act, Department of Justice, Ottawa.

like quantities and qualities as the first; it also forbids a supplier from selling at prices lower in one locality than in another, or unreasonably low anywhere, if the effect or tendency of such policy is to lessen competition substantially or eliminate competitors or the policy is designed to have such effect.

Sect. 33B provides that where a supplier grants advertising or display allowances to competing trade customers he must grant them in proportion to the purchases of such customers; any service he exacts in return must be such that his different types of customers are able to perform; and if such customers are required to incur expenses to earn such allowances, such expenses also must be proportionate to their purchases.

Sect. 33C makes it an offence for any person, for the purpose of promoting the sale or use of an article, to make any materially misleading representation to the public concerning the price at which such or like articles have been, will be or are ordinarily sold.

Sect. 34 prohibits a supplier of goods from prescribing the prices at which they are to be resold by wholesalers or retailers or from cutting off supplies to a merchant because of the merchant's failure or refusal to abide by such prices, i.e., the practice of "resale price maintenance". The Section also provides that it shall not be inferred that a person practised resale price maintenance simply because he refused or counselled the refusal of supplies to a merchant if there were reasonable cause to believe and the supplier did believe that the merchant was making a practice of using articles of such supplier as "loss-leaders" or as bait advertising or was making a practice of engaging in misleading advertising in respect of such articles or of not providing services that purchasers of such articles might reasonably expect.

The Act provides for a director who is responsible for investigating combines and other restrictive practices, and a commission (the Restrictive Trade Practices Commission) which is responsible for appraising the evidence submitted to it by the Director and the parties under investigation, and for making a report to the Minister. When there are reasonable grounds for believing that a forbidden practice is engaged in, the Director may obtain from the Commission authorization to examine witnesses, search premises, or require written returns. After examining all the information available, if the Director believes that it proves the existence of a forbidden practice, he submits a statement of the evidence to the Commission and to the parties believed to be responsible for the practice. The Commission then sets a time and place at which it hears argument on behalf of the Director in support of his statement, and hears argument and receives evidence on behalf of any persons against whom allegations have been made in the statement. Following this hearing, the Commission prepares and submits a report to the Minister, ordinarily required to be published within thirty days.

The Act also provides for general inquiries into restraints of trade which, while not forbidden or punishable, may affect the public interest. It further provides in Sect. 31 that the courts, including the Exchequer Court of Canada, in addition to imposing punishment for a contravention of the legislation, may make an order restraining persons from embarking on, continuing or repeating a contravention or directing the dissolution of a merger or monopoly as the case may be. Application also may be made to the courts for such an order in lieu of prosecuting and convicting for a contravention of the legislation. By virtue of the 1960 amendments, prosecutions for offences against the substantive provisions of the legislation (other than Sect. 33C which is punishable only on summary conviction) may be taken either in the provincial courts or with the consent of the accused in the Exchequer Court of Canada.

In the years 1962-64, the following reports of inquiries under the legislation were published:—

- (1) Distribution and Sale of Automotive Oils, Greases, Anti-Freeze, Additives, Tires, Batteries, Accessories and Related Products.
- (2) Manufacture, Distribution and Sale of Paperboard Shipping Containers and Related Products.
- (3) The Acquisition of the Common Shares of Hendershot Paper Products Limited by Canadian International Paper Company.

- (4) The Acquisition by Bathurst Power & Paper Company Limited of Wilson Boxes, Limited.
- (5) Manufacture, Distribution and Sale of Evaporated Milk and Related Products.
- (6) Distribution and Sale of Electric Appliances, Electric Shavers and Accessory Products (Sunbeam Corporation (Canada) Limited).
- (7) Manufacture, Distribution and Sale of Drugs.
- (8) Alleged Combine in the Matter of a Call for Tenders by the Town of Duvernay for the Construction of Sewers and Water Mains.
- (9) Sale of Plumbing and Heating Supplies and Related Products in the City of Montreal and Elsewhere in the Province of Quebec.
- (10) Production, Distribution and Supply of Newspapers in the Sudbury-Copper Cliff Area.
- (11) Distribution, Supply and Sale of Plumbing Supplies and Related Products (Alberta).
- (12) Road Surfacing in Ontario.
- (13) Ottawa Milk Pricing, November 1961.
- (14) Pricing Practices in the Pencil Industry.

These reports and copies of the annual reports under the Act may be obtained from the Queen's Printer or the office of the Director of Investigation and Research, Combines Investigation Act, Department of Justice, Ottawa.

Section 3.—Control and Sale of Alcoholic Beverages

The retail sale of alcoholic beverages in Canada is controlled by provincial and territorial government liquor control authorities. Alcoholic beverages are sold directly by most of these liquor control authorities to the consumer or to licensees for resale. However, in some provinces beer and wine are sold directly by breweries and wineries to consumers or to licensees for resale. During the year ended Mar. 31, 1964, provincial government liquor control authorities operated 1,070 retail stores.

Table 1 shows revenue from administration of liquor control by provincial and territorial governments. Details are given in DBS report, *The Control and Sale of Alcoholic Beverages in Canada* (Catalogue No. 63-202).

1.—Provincial Revenue from Administration of Liquor Control, Years Ended Mar. 31, 1963 and 1964

NOTE.—Figures include revenue collected directly by the provincial and territorial governments as well as revenue of the liquor authorities, but exclude revenue resulting from a general retail sales tax on alcoholic beverages levied by eight provinces.

Province or Territory	1963			1964		
	Net Income from Sales ¹	Sales Tax, Licences and Permits, and Other	Total	Net Income from Sales ¹	Sales Tax, Licences and Permits, and Other	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	2,604	2,416	5,020	2,783	2,634	5,417
Prince Edward Island.....	1,415	478	1,893	1,498	515	2,013
Nova Scotia.....	12,787	364	13,151	13,066	379	13,445
New Brunswick.....	9,642	244	9,886	10,099	318	10,417
Quebec.....	43,269	19,178	62,447	45,600	20,036	65,636
Ontario.....	63,177	26,645	89,822	70,748	27,631	98,379
Manitoba.....	12,391	3,177	15,568	13,233	3,440	16,673
Saskatchewan.....	14,406	290	14,696	15,711	391	16,102
Alberta.....	24,535	1,533	26,068	25,807	1,628	27,435
British Columbia.....	30,911	571	31,482	32,514	606	33,120
Yukon Territory.....	921	110	1,031	915	113	1,028
Northwest Territories.....	758	78	836	903	82	985
Canada.....	216,816	55,084	271,900	232,877	57,773	290,650

¹ After provision for depreciation on fixed assets and capital expenditure met out of operating income; includes commission on general sales tax collections.

Specified revenue of the Federal Government from alcoholic beverages comprising excise duties, excise taxes, customs duties and certain fees and licences in that connection is shown in Table 2.

2.—Specified Revenue of the Federal Government from Alcoholic Beverages, Years Ended Mar. 31, 1960-64

NOTE.—Figures exclude revenue from the general sales tax which is not available by commodities.

Nature of Levy	1960	1961	1962	1963	1964
	\$'000	\$'000	\$'000	\$'000	\$'000
On Spirits	132,240	139,823	143,616	152,907	155,545
Excise duty.....	102,354	108,502	113,689	122,021	129,399
Licences.....	7	8	8	8	9
Import duty.....	29,879	31,313	29,919	30,878 ¹	26,137
On Beer	90,873	91,165	93,257	98,354	103,116
Excise duty.....	90,704	90,971	93,051	98,097	102,914
Beer licences.....	3	3	3	3	3
Import duty.....	166	191	203	254 ¹	199
On Wine	4,686	4,920	5,223	6,417	5,504
Excise taxes.....	3,026	3,224	3,350	3,727	3,814
Import duty.....	1,660	1,696	1,873	2,690 ¹	1,690
Totals ²	227,799	235,908	242,096	257,678	264,165

¹ Includes an import surcharge of 15 p.c. ad valorem effective from June 25, 1962 to Feb. 20, 1963, when it was reduced to 10 p.c. ad valorem. The import surcharge was removed entirely as of Apr. 1, 1963. ² Drawbacks and refunds of duties and taxes have not been deducted.

Table 3 shows the value of sales of alcoholic beverages in 1962-64 but it should be noted that these figures do not always represent the final retail selling price of alcoholic beverages to the consumer because, when sold to licensees, only the selling price to licensees is known.

3.—Value of Sales of Alcoholic Beverages, Years Ended Mar. 31, 1962-64

Province or Territory	Spirits			Wines		
	1962	1963	1964	1962	1963	1964
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	5,911	6,353	6,683	571	620	635
Prince Edward Island.....	2,763	2,828	2,939	266	308	345
Nova Scotia.....	16,923	17,668	18,483	2,771	2,996	2,902
New Brunswick.....	12,379	12,733	13,094	2,380	2,579	2,764
Quebec.....	95,406	103,479	109,084	17,642	19,676	21,259
Ontario.....	170,302	185,461	203,356	21,909	23,696	26,287
Manitoba.....	22,500	23,355	24,434	2,832	3,089	3,282
Saskatchewan.....	18,154	18,986	20,855	2,915	3,120	3,350
Alberta.....	37,011	39,023	40,907	3,911	4,532	5,064
British Columbia.....	53,890	56,929	59,595	5,951	7,020	7,903
Yukon Territory.....	1,020	1,099	1,032	123	131	169
Northwest Territories.....	792	847	987	84	101	121
Canada	437,951	468,761	501,449	61,355	67,863	74,081
	Beer			Totals		
	1962	1963	1964	1962	1963	1964
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	11,547	12,652	13,464	18,029	19,625	20,782
Prince Edward Island.....	1,615	1,663	1,832	4,644	4,799	5,116
Nova Scotia.....	16,248	16,574	17,815	35,942	37,238	39,200
New Brunswick.....	11,127	11,322	12,540	25,886	26,634	28,398
Quebec.....	107,936	115,134	118,842	220,984	238,289	249,185
Ontario.....	179,388	184,806	191,540	271,599	293,963	321,183
Manitoba.....	30,065	30,449	32,626	55,397	56,893	60,342
Saskatchewan.....	24,177	24,454	26,166	45,246	46,560	50,371
Alberta.....	34,877	36,673	36,641	75,799	80,228	82,612
British Columbia.....	43,172	45,643	49,625	103,013	109,592	117,123
Yukon Territory.....	1,146	1,208	1,189	2,289	2,438	2,390
Northwest Territories.....	889	926	1,039	1,765	1,874	2,147
Canada	462,187	481,504	503,319	960,593	1,018,133	1,078,849

Section 4.—Miscellaneous Aids or Controls

The National Energy Board.—The National Energy Board was established by the National Energy Board Act, 1959 (SC 1959, c. 46) for the broad purpose of assuring the best use of energy resources in Canada. The Board is responsible for the regulation in the public interest of the construction and operation of oil and gas pipelines subject to the jurisdiction of the Parliament of Canada, the tolls charged for transmission by such pipelines, the export and import of gas, the export of electric power and the construction of those lines over which such power is exported. The Board is also required to study and keep under review all matters relating to energy within the jurisdiction of the Parliament of Canada and to recommend such measures as it considers necessary or advisable in the public interest with regard to such matters. The Act also authorizes the extension of the export and import provisions to oil upon proclamation by the Governor in Council. The Board, which reports to the Minister of Trade and Commerce, consists of a chairman, a vice-chairman and three other members.

During 1964, the work of the Board in fulfilment of its regulatory responsibilities under the National Energy Act included the issuing of 574 certificates, licences and orders, compared with 570 in 1963. The certificates authorized the construction of certain additional oil and gas pipeline facilities and international power lines; the licences and orders concerned the export of gas and electric power, the import of gas, the export of butanes by pipeline and exemption orders, the latter relating to the construction of pipelines or branches or extensions not exceeding 25 miles in length. Public hearings were held during 1964 in regard to an application for a new international power line and applications for additional oil pipeline and gas pipeline facilities. The Board also issued numerous orders relating to pipeline safety and carried out field inspections relating to the pressure-testing of gas and oil pipelines, gas compressor and oil pumping facilities and other pipeline installations.

During 1964, the Board continued the preparation of detailed supply and demand forecasts and the development, in co-operation with the Dominion Bureau of Statistics, of statistical records relating to energy. Progress was made in improving supply and demand data for petroleum, natural gas, coal and electricity in co-operation with the Inter-departmental Advisory Committee on Energy Statistics, the establishment of which was sponsored by the Board and the DBS.

Up-to-date estimates of reserves and producibility for crude oil, natural gas and natural gas liquids were maintained, in co-operation with interested provincial agencies and trade associations, and a detailed study of gas reserves in British Columbia was completed. During the year the Board was involved with a number of other agencies concerned with energy supply and demand, such as the Federal-Provincial Working Committee on Long-Distance Transmission, the Atlantic Development Board, the Canadian Standards Association Committee, the Emergency Supply Planning Branch of the Department of Defence Production and a number of energy industry advisory committees, and continued liaison with international organizations such as the Organization for Economic Co-operation and Development.

Trade Standards.—The Standards Branch of the Department of Trade and Commerce consolidates under one Director the administration of the Electricity Inspection Act, the Gas Inspection Act, the Precious Metals Marking Act, the Weights and Measures Act, and the National Trade Mark and True Labelling Act.

Commodity Standards.—On Nov. 26, 1949, Parliament passed the National Trade Mark and True Labelling Act (RSC 1952, c. 191) which provides a framework for the development of the National Standard and true labelling in order to circumvent public deception in advertising. In brief, the use of the National Standard is voluntary and compliance with commodity standards affects only those manufacturers who desire to use the national trade mark. This is exemplified in the National Trade Mark Garment Sizing Regulations which were passed on Mar. 16, 1961. In addition, where manufacturers

descriptively label any commodity or container, it must be labelled accurately to avoid public deception. The regulation applying to the labelling of fur garments, for example, has been established as a code of fair practice throughout the merchandising field.

Under the terms of the Precious Metals Marking Act, 1946 (RSC 1952, c. 215), commodities composed of gold, silver, platinum or palladium may be marked with a quality mark describing accurately the quality of the metal. Where such mark is used, a trade mark registered in Canada or for which application for registration has been made must also be applied. Gold-plated or silver-plated articles may also be marked under certain conditions outlined in the Act. The inspection staff of the Standards Branch is engaged in the examination of advertising matter, in verifying the quality of articles offered for sale, and in checking the marks applied.

Weights and Measures.—The Weights and Measures Act (RSC 1952, c. 292) prescribes the legal standards of weight and measure for use in Canada; it also requires control of the type of all weighing and measuring devices used for commercial purposes and their periodic verification and surveillance directed toward the elimination of sales by short weight or short measure. During 1964, 772,563 prepackaged articles were checked for weight or measure and 504,999 inspections of devices were made.

Electricity and Gas Inspection.—Responsibilities of the Standards Branch, under the Electricity Inspection Act (RSC 1952, c. 94) and the Gas Inspection Act (RSC 1952, c. 129) comprise the testing and stamping of every electricity and gas meter used throughout Canada for billing purposes, the object being to ensure the correct measurement of all electricity and gas sold. Canada is divided into 20 districts for administration of the two Acts and the staff numbers 211. During the year ended Mar. 31, 1964, 1,345,867 meters were tested. In 1963, there were 5,808,101 electricity meters and 1,518,301 gas meters registered in Canada.

*Patents.**—Letters patent are issued subject to the provisions of the Patent Act (RSC 1952, c. 203), effective since 1935. Applications for protection relating to patents should be addressed to the Commissioner of Patents, Ottawa.

4.—Patents Applied for, Granted, etc., Years Ended Mar. 31, 1960-64

Item		1960	1961	1962	1963	1964
Applications for patents.....	No.	24,292	24,529	25,447	26,409	27,057
Patents granted.....	"	22,021	22,014	21,659	21,225	23,230
Granted to Canadians.....	"	1,903	2,036	1,844	1,682	1,763
Caveats granted.....	"	291	281	226	256	266
Assignments.....	"	22,015	22,587	24,161	24,180	25,313
Fees received, net.....	\$	1,793,685	1,806,279	1,858,965	1,922,250	2,002,271

The number of Canadian patents granted increased fairly steadily each year from 4,522 at the beginning of the century to 23,230 in the year ended Mar. 31, 1964. Roughly, 68 p.c. of the patents granted resulted from inventions made by residents of the United States, 6 p.c. by residents of Britain and other Commonwealth countries and 6 p.c. by residents of Canada. Printed copies of patents issued from Jan. 1, 1948 to date are available at a nominal fee. The Canadian *Patent Office Record* gives a brief digest of each patent.

Canadian and foreign patents may be consulted at the Patent Office Library. The Library has records of British patents and abridged specifications thereof from 1617 to date, and of United States patents from 1845 to date, as well as many patents, indexes, journals and reports from Australia, New Zealand, South Africa, India, Pakistan, France, Belgium, Austria, Norway, Mexico, Italy, Sweden, the Netherlands, Switzerland, Japan, Egypt, Germany, Ireland, Colombia, Czechoslovakia and Yugoslavia.

* Revised by the Commissioner of Patents, Department of the Secretary of State, Ottawa.

Copyrights, Industrial Designs and Timber Marks.*—Copyright protection is governed by the Copyright Act (RSC 1952, c. 55) in force since 1924. Protection is automatic without any formality. However, a system of voluntary registration is provided. Application for registration should be addressed to the Commissioner of Patents, Ottawa.

The Act sets out the qualifications for a copyright and its duration: "Copyrights shall subsist in Canada . . . in every original literary, dramatic, musical and artistic work, if the author was, at the date of the making of the work, a British subject, a citizen or subject of a foreign country which has adhered to the Berne Convention and the additional Protocol . . . or resident within Her Majesty's Dominions. The term for which the copyright shall subsist shall, except as otherwise expressly provided by this Act, be the life of the author and a period of fifty years after his death."

Canada belongs to the Universal Copyright Convention. This means that the works of Canadian authors are protected in the United States without the formality of compulsory registration or the obligation of printing in the United States, provided that, from the first publication, the work bears in a prominent place the following identification: ©, followed by the name of the proprietor and the year of publication.

Copyright protection is extended to records, perforated rolls, cinematographic films, and other contrivances by means of which a work may be mechanically performed. The intention of the Act is to enable Canadian authors to obtain full copyright protection in Canada, in all parts of the Commonwealth, in foreign countries of the Copyright Union and in the United States. Protection of industrial designs and of timber marks is afforded under the Industrial Design and Union Label Act and the Timber Marking Act. Registers of such designs and marks are kept by the Copyright Branch of the Patent Office.

5.—Copyrights, Industrial Designs and Timber Marks Registered, Years Ended Mar. 31, 1960-64

Item		1960	1961	1962	1963	1964
Copyrights registered.....	No.	5,513	6,381	6,479	7,279	7,098
Industrial designs registered.....	"	790	795	684	788	814
Timber marks registered.....	"	—	—	1	3	2
Assignments registered.....	"	1,037	1,019	1,213	1,279	1,165
Fees received, net.....	\$	24,614	27,446	28,634	31,145	31,040

Trade Marks.†—The Trade Marks Office, a Branch of the Department of the Secretary of State, administers the Trade Marks Act (SC 1952-53, c. 49) which covers all legislation concerning the registration and use of trade marks and supersedes from July 1, 1954, former legislation enacted under the Unfair Competition Act, the Union Label Act and the Shop Cards Registration Act. Correspondence relating to an application for registration of a trade mark should be addressed to the Registrar of Trade Marks, Ottawa.

Applications are advertised for opposition purposes in the *Trade Marks Journal*, a weekly publication that also gives particulars of every registration of a trade mark and every registration of a registered user. The required fee payable on application for registration of a trade mark is \$25, for advertisement of an application \$15 and for registration of a person as a registered user of a trade mark, \$20.

* Revised by the Commissioner of Patents, Department of the Secretary of State, Ottawa.

† Revised by the Registrar of Trade Marks, Department of the Secretary of State, Ottawa.

6.—Trade Marks Registered, Years Ended Mar. 31, 1960-64

Item		1960	1961	1962	1963	1964
Trade marks registered.....	No.	3,818	4,524	4,438	4,620	4,905
Trade mark registrations assigned.....	"	2,541	3,115	3,335	2,887	3,534
Trade mark registrations renewed.....	"	1,481	1,748	1,961	2,657	3,105
Certified copies prepared.....	"	1,368	1,407	1,412	1,529	1,415
Fees received, net.....	\$	302,164	305,036	336,212	346,387	363,481

Subventions and Bounties on Coal.*—A major problem of the Canadian coal mining industry arises from the fact that its fields are situated far distant from the main consuming markets of the Provinces of Ontario and Quebec while these markets lie in close proximity to the bituminous and anthracite fields of the United States. Transportation subventions, which have been maintained in varying degree during the past 30 years, were designed to further the movement of Canadian coals by equalizing as far as possible their laid-down costs with the laid-down costs of imported coals in various market areas. Since 1963, an addition to subvention regulations has also enabled eastern Canadian coals to be made competitive with imported residual fuel oils in the Atlantic Provinces and the Province of Quebec. Subvention assistance is authorized by annual Parliamentary vote and payments are administered in accordance with regulations established by Orders in Council.

7.—Expenditure for Coal Subventions, by Province, 1960-64

NOTE.—Tonnages and expenditures shown in a given year, being on a calendar-year basis, are not necessarily in direct relationship; certain of the amounts include adjustments on movements of previous years.

Province		1960	1961	1962	1963	1964
Nova Scotia.....	ton	2,048,073	2,323,684	2,191,938	2,428,819	2,336,571
	\$	12,950,723	14,208,207 ¹	14,589,764	14,442,122	12,780,461
New Brunswick.....	ton	173,063	146,201	114,186	191,765	407,120
	\$	324,922	227,129	221,984	540,351	1,263,668
Saskatchewan.....	ton	79,377	104,807	82,511	89,311	128,215
	\$	64,248	83,161	62,359	65,542	93,415
Alberta and eastern British Columbia.....	ton	51,884	38,171	57,539	63,346	51,296
	\$	151,685	96,680	150,595	172,782	145,545
British Columbia and Alberta export.....	ton	633,913	719,840	634,855	716,740	1,001,230
	\$	2,852,608	3,239,279	2,408,653	2,323,118	2,911,292
Totals.....	ton	2,986,310	3,332,703	3,081,029	3,489,981	3,924,432
	\$	16,344,196	17,854,456¹	17,433,355	17,543,915	17,194,381

¹ Includes \$500,000 paid by the Nova Scotia Government as its share of the joint cost of certain Nova Scotia subvention payments.

The Canadian Coal Equality Act (RSC 1952, c. 34), which implemented one of the recommendations of the Royal Commission on Maritime Claims (1926), was designed to assist the Canadian steel industry and only incidentally affects coal. It provides for the payment of 49.5 cents per ton on bituminous coal mined in Canada and converted into coke to be used in the Canadian manufacture of iron and steel. Bounties paid under this authority for the years 1960-64 were as follows:—

<i>Item</i>	<i>1960</i>	<i>1961</i>	<i>1962</i>	<i>1963</i>	<i>1964</i>
Quantity..... ton	693,581	457,950	420,036	482,406	472,968
Amount..... \$	343,323	226,685	207,918	238,791	234,119

PART III.—BANKRUPTCIES AND COMMERCIAL FAILURES

Two series of figures are included in this part which, although closely related as far as subject matter is concerned, cover different aspects of the field of bankruptcies and commercial failures. The first, under the heading of "Administration of Bankrupt Estates" is limited to the supervision, by the Superintendent of Bankruptcy, of the administration of bankrupt estates under the Bankruptcy Act (including the Farmers' Creditors Arrangement Act); it gives information on the amounts realized from the assets as established by debtors and indicates that values actually paid to creditors are invariably very much lower than such estimates alone would imply. It can therefore be assumed that this applies in even greater degree to the more extended fields covered in the second section under the heading of "Returns under the Bankruptcy and Winding-Up Act" which is compiled by

* Revised by the Administrative Officer, Dominion Coal Board, Ottawa.

the Dominion Bureau of Statistics. This series is limited to bankruptcies and insolvencies made under federal legislation (the Bankruptcy Act and the Winding-Up Act) and, since 1955, includes business failures only (see p. 898). The figures of assets and liabilities are estimates made by the debtor and, because they are not made uniformly, should be accepted with reservations.

Administration of Bankrupt Estates.*—Federal insolvency legislation comprises the Bankruptcy Act 1949 (RSC 1952, c. 14), the Farmers' Creditors Arrangement Act 1943 (RSC 1952, c. 111), the Companies' Creditors Arrangement Act (RSC 1952, c. 54), and, to some extent, the Winding-Up Act (RSC 1952, c. 296). The two Arrangement Acts are designed to avert failure and neither series of statistics therefore includes proposals or arrangements under these Acts. When such proposals or arrangements are rejected by the creditors or fail in their purpose, the proceedings may then come under the Bankruptcy Act, the bankruptcy provisions of the Farmers' Creditors Arrangement Act or, in certain circumstances, the Winding-Up Act. There are no provisions in the Companies' Creditors Arrangement Act for the liquidation or winding-up of insolvent companies.

* Prepared by the Superintendent of Bankruptcy, Ottawa.

1.—Assets, Liabilities, Assets Realized and Cost of Administration under the Bankruptcy Act, by Province, 1963

Province	BANKRUPTCIES UNDER GENERAL PROVISIONS OF THE ACT ¹					
	Estates Closed	Assets as Estimated by Debtors	Liabilities as Estimated by Debtors	Total Realization	Cost of Administration	Paid to Creditors
	No.	\$	\$	\$	\$	\$
Newfoundland.....	4	116,534	282,715	39,632	16,644	22,988
Prince Edward Island.....	4	53,581	68,500	9,862	2,715	7,147
Nova Scotia.....	15	432,581	742,478	102,522	25,345	77,177
New Brunswick.....	13	157,554	420,626	33,745	21,172	12,573
Quebec.....	1,478	13,657,983	27,434,249	3,804,380	1,558,517	2,245,863
Ontario.....	1,080	14,701,340	33,448,169	3,320,233	1,392,606	1,927,627
Manitoba.....	25	2,626,258	3,550,469	371,087	136,097	234,990
Saskatchewan.....	41	590,449	1,002,219	102,031	32,824	69,207
Alberta.....	77	774,169	1,879,060	320,700	100,493	220,207
British Columbia.....	92	2,235,739	4,473,362	407,155	132,798	274,357
Totals.....	2,829	35,346,188	73,301,847	8,511,347	3,419,211	5,092,136
	PROPOSALS UNDER SECTION 27(1)(a) OF THE ACT					
	Proposals Completed	Unsecured Liabilities as Estimated by Debtors		Paid to Unsecured Creditors		
	No.	\$		\$		
Newfoundland.....	2	317,694		71,793		
Prince Edward Island.....	—	...		...
Nova Scotia.....	2	220,619		71,818		
New Brunswick.....	1	11,228		2,238		
Quebec.....	75	4,214,579		1,197,741		
Ontario.....	32	3,248,414		860,889		
Manitoba.....	1	445,587		102,528		
Saskatchewan.....	—	...		...
Alberta.....	—	...		...
British Columbia.....	9	827,172		257,943		
Totals.....	122	9,285,293		2,564,950²		

¹ Includes summary administration provisions of the Bankruptcy Act.

² In addition to the amount paid to creditors by the trustee, secured creditors realized direct from their security approximately \$23,370,188.

Returns under the Bankruptcy and Winding-Up Acts.*—The DBS statistics concerning bankruptcies and insolvencies cover only the failures coming under federal legislation, i.e., the Bankruptcy Act and the Winding-Up Act. The series, since 1955, covers business failures only, excluding failures of individuals such as wage-earners, salesmen and executive personnel.

* Prepared by the Business Finance Division, Dominion Bureau of Statistics.

2.—Bankruptcies and Insolvencies under Federal Legislation, by Province, 1955-64

Year	Atlantic Provinces	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total
	No.	No.	No.	No.	No.	No.	No.	No.
1955.....	36	1,180	406	27	37	42	67	1,795
1956.....	37	1,265	507	23	34	41	60	1,967
1957.....	54	1,359	630	26	32	55	57	2,213
1958.....	36	1,376	545	28	18	51	71	2,125
1959.....	36	1,366	658	26	20	47	76	2,229
1960.....	48	1,638	914	34	28	46	120	2,828
1961.....	47	1,450	932	39	25	62	104	2,659
1962.....	33	1,694	1,177	47	36	94	109	3,190
1963.....	60	1,987	1,389	45	37	67	92	3,677
1964.....	67	1,872	1,281	53	30	80	116	3,499

3.—Bankruptcies and Insolvencies under Federal Legislation, by Branch of Business, 1955-64

Year	Agriculture, Forestry, Fishing, Trapping and Mining	Manu- fac- turing	Con- struc- tion	Transporta- tion, Communi- cations and Storage	Trade	Finance and Public Utilities	Service	Not Classified	Total
	No.	No.	No.	No.	No.	No.	No.	No.	No.
1955.....	66	290	309	68	772	14	250	26	1,795
1956.....	58	342	375	83	782	28	246	53	1,967
1957.....	80	366	372	109	928	40	244	74	2,213
1958.....	67	356	367	105	882	42	295	11	2,125
1959.....	81	374	449	76	906	36	307	—	2,229
1960.....	100	323	619	129	1,229	65	363	—	2,828
1961.....	86	285	470	113	1,234	69	402	—	2,659
1962.....	93	326	573	143	1,496	82	477	—	3,190
1963.....	111	365	714	166	1,634	110	577	—	3,677
1964.....	146	327	706	181	1,492	92	555	—	3,499

4.—Estimated Liabilities of Bankruptcies and Insolvencies, 1955-64

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1955.....	2,248	28,746	16,299	3,939	2,548	53,776
1956.....	2,049	32,704	21,842	5,223	2,437	64,254
1957.....	2,508	37,266	31,349	5,683	3,056	79,863
1958.....	4,493	40,250	17,884	4,672	5,479	72,778
1959.....	2,302	50,034	34,156	3,866	5,429	95,786
1960.....	3,568	61,851	91,090	7,732	10,307	174,548
1961.....	4,714	49,133	48,352	7,075	7,246	116,520
1962.....	2,566	77,002	55,946	6,843	7,083	149,440
1963.....	3,788	91,467	84,260	8,330	7,757	195,602
1964.....	5,863	111,172	71,193	12,144	8,362	208,734

5.—Bankruptcies and Insolvencies, by Industry and Economic Area, 1964

Industry	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia	Total	Total Liabilities
	No.	No.	No.	No.	No.	No.	\$'000
Primary Industries	2	73	54	5	12	146	7,136
Manufacturing	1	194	113	11	8	327	32,167
Foods and beverages.....	1	14	10	2	2	29	1,296
Textiles.....	—	4	—	—	—	4	1,391
Clothing.....	—	45	6	2	1	54	3,504
Wood.....	—	47	18	2	4	71	6,330
Paper and allied industries.....	—	20	22	3	1	46	2,978
Primary and fabricated metal, machinery, transportation equip- ment, electrical products and non- metallic mineral products.....	—	27	31	2	—	60	9,921
Chemical.....	—	3	3	—	—	6	263
Other industries.....	—	34	23	—	—	57	6,484
Construction	19	355	264	45	23	706	49,976
General contractors.....	14	150	107	22	15	308	35,663
Special trade contractors.....	5	205	157	23	8	398	14,313
Transportation, Communications and Other Utilities	3	100	62	9	7	181	6,497
Trade	38	769	559	78	48	1,492	58,420
Food.....	5	148	74	7	6	240	6,138
General merchandise.....	5	21	24	6	4	60	4,054
Automotive products.....	10	222	147	23	10	412	10,576
Apparel and shoes.....	1	109	77	9	6	202	7,107
Houseware.....	7	66	68	8	3	152	10,943
Hardware furniture and appliances..	3	72	49	10	2	136	7,272
Drugs.....	1	9	9	3	3	25	1,168
Other trades.....	6	122	111	12	14	265	11,162
Finance, Insurance and Real Estate	—	58	31	2	1	92	27,818
Service	4	323	198	13	17	555	26,720
Education, health and welfare.....	—	11	11	—	—	22	990
Recreational.....	—	19	13	—	—	32	2,681
Business.....	2	46	32	1	2	83	3,983
Personal.....	2	222	124	8	13	369	17,392
Other.....	—	25	18	4	2	49	1,674
Totals	67	1,872	1,281	163	116	3,499	208,734

PART IV.—PRICES*

Section 1.—Index Numbers of Wholesale Prices

The term "wholesale prices" refers to transactions that occur below the retail level. It has more of a connotation of bulk purchase and sale than of any homogeneous level of distribution. Wholesale price indexes and individual price series have numerous uses. One of the most important is in escalator contracts which contain a price adjustment clause. Other major uses include: study of replacement and construction costs in investment projects; analysis of price movements of both individual items and commodity groups in relation to purchases and sales; industrial planning and market analysis; valuation for tax purposes and inventory analysis; and study of changes in physical volume. They are also used by business firms abroad in connection with sales and purchases in Canada.

General Wholesale Index. —The general wholesale index mainly includes manufacturers' prices but also incorporates those of wholesalers proper, assemblers of primary products, agents and operators of other types of commercial enterprises which trade in commodities of a type, or in quantities characteristic of primary marketing functions.

* Prepared in the Prices Division, Dominion Bureau of Statistics.

Prices are grouped according to a commodity classification scheme based on chief component material similarities. Indexes classified according to degree of manufacture are also available. In Table 1, the general wholesale index is presented for the period 1937-64. This index is used as a conventional summary figure against which to observe the behaviour of particular price groups such as farm products, raw materials and building materials, for which separate price indexes have been constructed. Table 2 gives, for the years 1955-64, the general wholesale price index and two of its integral classifications—raw and partly manufactured goods, and fully and chiefly manufactured goods; also presented are two related systems—industrial materials and Canadian farm products. Annual price index numbers of non-residential building materials and residential building materials are given for 1955-64 in Tables 3 and 4, respectively. More specific indexes are published regularly in the DBS monthly publication *Prices and Price Indexes* (Catalogue No. 62-002), which also contains current series on retail and security prices. Vol. 23 of that publication is a historical summary reaching back to the year 1867 for some series.

A system of wholesale price indexes called *Industry Selling Price Indexes 1956=100*, refers exclusively to manufacturing industries and includes approximately 100 industry and 175 commodity indexes. DBS Reference Paper No. 62-515 contains tables, explanatory text, charts and weights relating to these indexes; current indexes are published monthly in *Prices and Price Indexes* (Catalogue No. 62-002).

1.—General Wholesale Index Annual Averages, 1937-64

(1935-39=100)

Year	Average	Year	Average	Year	Average	Year	Average
1937.....	107.7	1944.....	130.6	1951.....	240.2	1958.....	227.8
1938.....	102.0	1945.....	132.1	1952.....	226.0	1959.....	230.6
1939.....	99.2	1946.....	138.9	1953.....	220.7	1960.....	230.9
1940.....	108.0	1947.....	163.3	1954.....	217.0	1961.....	233.3
1941.....	116.4	1948.....	193.4	1955.....	218.9	1962.....	240.0
1942.....	123.0	1949.....	198.3	1956.....	225.6	1963.....	244.6
1943.....	127.9	1950.....	211.2	1957.....	227.4	1964.....	245.4

The general wholesale index moved slightly upward in 1964, reaching a high of 245.4. The fully and chiefly manufactured goods index advanced 0.9 p.c. and the raw and partly manufactured goods index declined 0.5 p.c. The industrial materials index rose 1.9 p.c. in the same comparison but the farm products index was 3.8 p.c. lower. The latter, however, is based on preliminary indexes for field products and total farm products, pending receipt of final participation payments from the Canadian Wheat Board.

2.—Annual Index Numbers of Wholesale Price Groups, 1955-64

(1935-39=100)

Year	General Wholesale Index	Raw and Partly Manufactured Goods	Fully and Chiefly Manufactured Goods	Industrial Materials	Canadian Farm Products		
					Field	Animal	Total
1955.....	218.9	209.7	224.5	236.0	180.1	245.1	212.6
1956.....	225.6	215.8	231.5	248.2	181.6	246.9	214.2
1957.....	227.4	209.4	237.9	240.3	169.2	258.0	213.6
1958.....	227.8	209.3	238.3	229.8	171.4	274.5	222.9
1959.....	230.6	210.9	241.6	240.2	176.1	271.6	223.9
1960.....	230.9	209.6	242.2	240.4	189.1	264.1	226.6
1961.....	233.3	212.6	244.5	243.2	191.7	270.0	230.9
1962.....	240.0	223.8	249.0	248.0	195.5	286.0	240.8
1963.....	244.6	226.9	254.2	253.5	197.2	275.4	236.3
1964.....	245.4	225.7	256.4	258.3	187.3 ^p	267.3	227.3 ^p

The price indexes of building materials* were higher in 1964. The non-residential index (1949=100) at 141.8 in December, was up from 137.6 a year earlier; the annual index was 140.6 compared with 135.5 for 1963. The residential building materials index (1935-39=100, arithmetically converted to the base 1949=100 for comparability with the non-residential index) moved up from 138.4 in December 1963 to 145.6 in December 1964; the composite for the year was 9.1 points higher than in 1963.

* Details of weighting and construction and historical series appear in DBS publications *Price Index Numbers of Residential Building Materials, 1936-48* (Catalogue No. 62-505) and *Price Index Numbers of Non-residential Building Materials, 1935-52* (Catalogue No. 62-506). Revised item list and weighting for the electrical component of the residential building materials index, effective July 1960, is available on request.

3.—Annual Price Index Numbers of Non-residential Building Materials, 1955-64

(1949=100)

Year	Composite Index	Principal Components						
		Steel and Metal Work	Plumbing, Heating and Other Equipment	Electrical Equipment and Fixtures	Aggregate, Cement and Concrete Mix	Lumber and Lumber Products	Blocks, Brick and Stone	Tile
GROUP WEIGHT AS A PERCENTAGE OF TOTAL.....	...	20.1	21.4	11.5	11.1	10.5	9.1	3.8
1955.....	123.4	129.9	118.0	121.3	120.3	127.6	127.0	120.3
1956.....	128.0	139.0	123.4	123.6	117.0	131.5	130.3	120.8
1957.....	130.0	147.7	124.1	118.4	119.4	128.7	134.0	118.5
1958.....	129.8	150.9	123.8	114.0	119.6	126.8	135.7	118.2
1959.....	131.7	152.6	126.0	119.2	118.6	131.3	137.4	118.3
1960.....	132.3	152.9	126.7	119.5	119.8	129.0	139.1	121.0
1961.....	131.1	153.2	126.3	113.8	119.8	127.6	133.0	123.9
1962.....	131.9	153.3	127.4	114.0	122.0	130.8	130.9	125.0
1963.....	135.5	157.1	126.8	120.8	126.8	136.7	135.9	129.8
1964 ^p	140.6	164.3	129.5	122.6	131.2	147.5	143.5	136.5

4.—Annual Price Index Numbers of Residential Building Materials, 1955-64

(1949=100)

Year	Composite Index	Principal Components								
		Cement, Sand and Gravel	Brick, Tile and Stone	Lumber and its Products	Lath, Plaster and Insulation	Roofing Material	Paint and Glass	Plumbing and Heating Equipment	Electrical Equipment and Fixtures	Other Materials
GROUP WEIGHT AS A PERCENTAGE OF TOTAL.....	...	7.6	5.0	42.6	11.3	2.9	3.2	18.6	3.8	5.0
1955.....	124.3	117.6	138.7	127.1	106.1	128.3	122.3	115.0	132.2	131.8
1956.....	128.5	117.9	144.9	130.5	110.8	136.3	126.3	120.9	140.5	139.5
1957.....	128.4	120.9	148.2	128.9	115.9	133.0	125.5	126.3	120.6	145.3
1958.....	127.3	123.5	148.7	127.2	118.4	123.6	126.2	127.5	107.8	145.4
1959.....	130.0	121.1	150.9	130.7	119.3	125.6	127.7	128.5	116.3	147.1
1960.....	129.2	121.7	151.9	129.1	120.6	112.6	128.3	130.5	114.3	150.1
1961.....	128.3	120.5	145.0	128.0	122.6	107.1	131.2	131.0	112.0	149.9
1962.....	129.7	120.5	143.6	130.4	126.2	112.0	132.9	128.6	114.0	149.4
1963.....	134.4	124.9	149.8	135.9	128.5	126.1	142.8	131.0	118.2	143.2
1964 ^p	143.5	130.6	156.3	147.7	135.2	138.4	149.9	134.1	119.4	148.9

Highway Construction Price Index.—A system of annual base-weighted and current-weighted bid price indexes (1953=100) relating mainly to provincial highway construction was developed recently, by which price movement is shown for completed units of work such as earth excavation or crushed gravel in place. DBS Reference Paper 62-520 contains tables, explanatory text, charts and weights relating to these indexes. Current indexes are published from time to time in the monthly reports on *Prices and Price Indexes* (Catalogue No. 62-002).

World Wholesale Price Indexes.—Price changes within different countries have varied widely during the years. Comparisons of Canadian wholesale price indexes with those of other countries are given in Table 5.

5.—Index Numbers of Wholesale Prices in Canada and Other Countries, 1962-64

(1958=100)

SOURCE: *United Nations Monthly Bulletin of Statistics*, June 1965.

Country	1962	1963	1964	Country	1962	1963	1964
Belgium.....	101	104	109	India.....	115	119	134
Brazil.....	383	664	1,275	Iran ¹	103	104	108
Britain.....	100	102	106	Ireland.....	105	106	113
Canada.....	105	107	108	Korea, Republic of.....	140	168	227
Chile.....	149	229	345	Netherlands.....	99	101	108
Denmark.....	105	108	111	New Zealand.....	102	105	110
Dominican Republic (Santo Domingo).....	100	107	105	Norway.....	104	104	109
France.....	113	117	119	Sweden.....	107	110	115
Germany, Federal Republic of.....	103	104	104	Switzerland.....	102	106	109
Greece.....	104	110	114	Turkey.....	137	143	142
				United Arab Republic.....	101	100	105
				United States.....	100	100	100

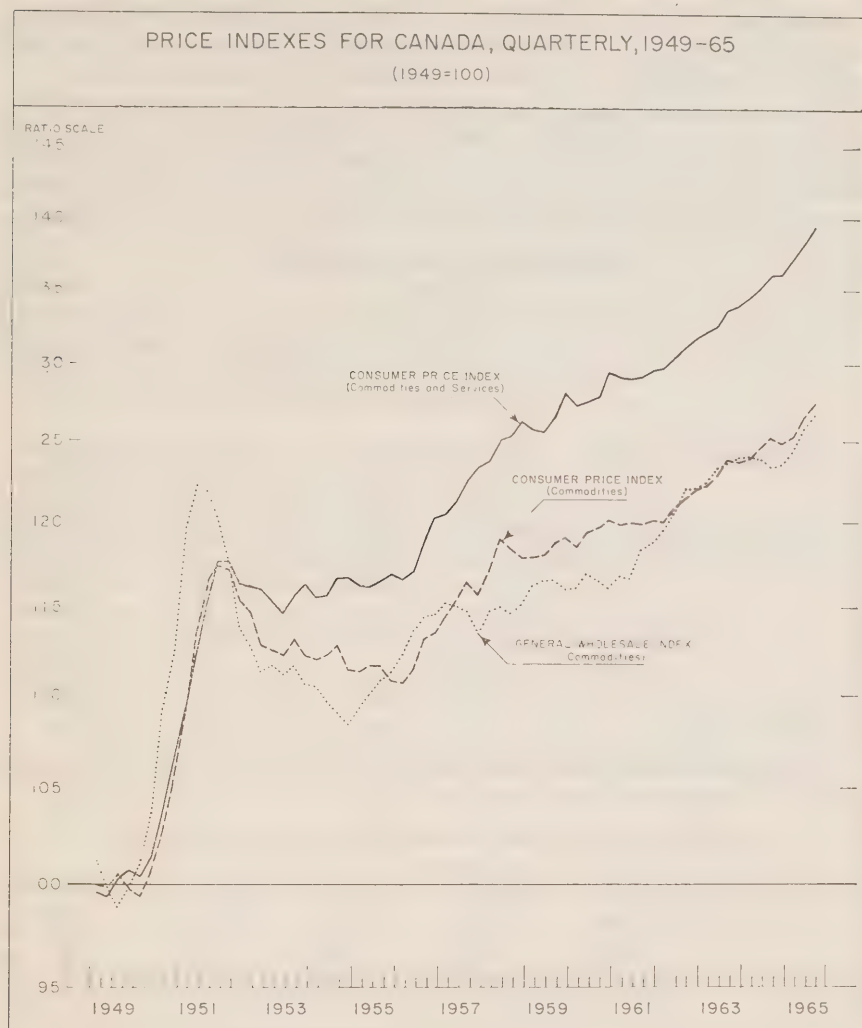
¹ Base Mar. 21, 1959—Mar. 20, 1960=100.

Section 2.—Consumer Price Index*

The purpose of the consumer price index is to measure the movement from month to month in retail prices of goods and services bought by a representative cross-section of the Canadian urban population. For a particular article or service, a price index number is simply the price of the article in one period of time expressed as a percentage of its price in a reference period, usually called a base period. However, indexes for individual goods may be combined to form indexes representing prices of broad groups of goods and services. Thus, the consumer price index relates to the wide range of goods and services bought by Canadian urban families. The index expresses the combined prices of such goods each month as a percentage of their prices in the base period 1949.

The group of goods and services represented in the index is called the index "basket" and "weights" are assigned to the price indexes of individual items for purposes of combining them into an over-all or composite index. The weights reflect the relative importance of items in expenditures of middle-size urban families with medium incomes. The basket is an unchanging or equivalent quantity and quality of goods and services. Only prices change from month to month and the index, therefore, measures the effect of changing prices on the cost of purchasing the fixed basket. The basket and weights now used in the index are based on expenditures in 1957 of families of two to six persons, with annual incomes of \$2,500 to \$7,000, living in cities of 30,000 population or over.

* A comprehensive description of the index is contained in the publication *The Consumer Price Index (1949=100)*—Revision Based on 1957 Expenditures (Catalogue No. 62-518).



6.—Consumer Price Index Numbers, 1937-64

(1949=100)

Year	Index	Year	Index	Year	Index	Year	Index
1937.....	63.0	1944.....	74.6	1951.....	113.7	1958.....	125.1
1938.....	63.7	1945.....	75.0	1952.....	116.5	1959.....	126.5
1939.....	63.2	1946.....	77.5	1953.....	115.5	1960.....	128.0
1940.....	65.7	1947.....	84.8	1954.....	116.2	1961.....	129.2
1941.....	69.6	1948.....	97.0	1955.....	116.4	1962.....	130.7
1942.....	72.9	1949.....	100.0	1956.....	118.1	1963.....	133.0
1943.....	74.2	1950.....	102.9	1957.....	121.9	1964.....	135.4

The behaviour of the consumer price index during the years of almost continuous economic growth following the end of the Second World War up to 1959 is discussed in the 1962 Year Book at pp. 928-929 and the movement during 1959-62 in subsequent editions.

Following a period of relative price stability, prices began to advance at a slightly higher rate in 1963, averaging 1.8 p.c. above 1962. The largest increases occurred in food (3.2 p.c.), health and personal care (2.6 p.c.) and clothing (2.5 p.c.). In 1964, the advance continued with prices again averaging 1.8 p.c. over the previous year. The groups showing the largest increases in 1964 were health and personal care (3.3 p.c.) and clothing (2.5 p.c.).

7.—Consumer Price Index Numbers, 1955-64

(1949=100)

Year	Food	Housing	Clothing	Transportation	Health and Personal Care	Recreation and Reading	Tobacco and Alcohol	Composite Index
GROUP WEIGHT AS A PERCENTAGE OF TOTAL.....	27	32	11	12	7	5	6	100
1955.....	112.1	122.4	108.0	118.5	126.7	122.6	107.4	116.4
1956.....	113.4	124.2	108.6	123.3	130.0	125.3	107.7	118.1
1957.....	118.6	126.7	108.5	129.9	138.2	129.8	109.4	121.9
1958.....	122.1	129.0	109.7	133.8	145.4	138.4	110.6	125.1
1959.....	121.1	131.4	109.9	138.4	150.2	141.7	114.0	126.5
1960.....	122.2	132.7	110.9	140.3	154.5	144.3	115.8	128.0
1961.....	124.0	133.2	112.5	140.6	155.3	146.1	116.3	129.2
1962.....	126.2	134.8	113.5	140.4	158.3	147.3	117.8	130.7
1963.....	130.3	136.2	116.3	140.4	162.4	149.3	118.1	133.0
1964.....	132.4	138.4	119.2	142.0	167.8	151.8	120.2	135.4

Table 8 gives single commodity price relatives for a number of important items entering into the food component of the consumer price index.

8.—Urban Average and Relative Retail Prices of Staple Foods, 1955-64

(1949=100)

Year	Beef, sirloin, per lb.		Pork, rib chops, per lb.		Butter, creamery, per lb.		Eggs, "A", fresh, per doz.		Milk, fresh, per qt.	
	Average Price	Price Relative	Average Price	Price Relative	Average Price	Price Relative	Average Price	Price Relative	Average Price	Price Relative
	cts.		cts.		cts.		cts.		cts.	
1955.....	80.0	113.6	61.5	108.2	64.1	99.2	61.5	99.9	21.1	118.5
1956.....	81.6	115.9	64.4	113.2	63.5	98.3	63.2	102.7	21.2	119.1
1957.....	84.3	119.7	74.6	131.1	65.7	101.7	56.0	91.0	22.5	126.2
1958.....	94.4	134.1	72.5	127.4	69.2	107.0	57.9	94.1	23.2	130.4
1959.....	101.0	143.5	67.6	118.9	69.6	107.8	54.4	88.4	23.4	131.0
1960.....	97.7	138.8	69.8	122.8	69.8	108.0	54.5	88.6	23.7	133.0
1961.....	97.1	138.0	72.8	128.0	69.9	108.2	56.3	91.5	23.5	132.0
1962.....	107.4	152.5	74.9	131.7	62.1	96.0	53.2	86.5	23.6	132.4
1963.....	103.7	147.4	74.4	130.9	58.5	90.5	58.4	94.9	23.8	134.0
1964.....	99.9	141.9	73.1	128.4	58.9	91.2	50.7	82.4	24.6	138.2

8.—Urban Average and Relative Retail Prices of Staple Foods, 1955-64—concluded

Year	Flour, per lb.		Tomatoes, canned, 28-oz. tin		Potatoes, 10 lb.		Sugar, granulated, per lb.		Bread, per lb.	
	Average Price	Price Relative	Average Price	Price Relative	Average Price	Price Relative	Average Price	Price Relative	Average Price	Price Relative
	cts.		cts.		cts.		cts.		cts.	
1955.....	7.4	106.4	26.3	131.3	46.8	134.5	9.2	99.7	12.8	126.4
1956.....	7.6	108.8	27.3	136.1	49.7	142.6	9.3	100.4	13.3	131.6
1957.....	7.9	113.3	29.1	144.8	42.1	120.8	12.3	133.1	14.3	141.4
1958.....	8.0	114.3	26.6	132.2	45.7	131.2	10.6	114.4	14.8	146.3
1959.....	8.4	119.9	27.3	136.1	48.9	140.3	9.4	101.4	15.2	150.9
1960.....	8.8	125.5	27.8	138.2	58.0	166.5	9.4	101.7	15.6	154.5
1961.....	9.0	128.9	27.0	134.5	47.8	137.2	9.6	103.8	15.9	157.6
1962.....	9.8	141.0	26.6	132.7	47.3	135.9	9.5	103.4	16.4	162.2
1963.....	10.3	147.4	27.1	135.0	51.4	147.7	15.7	170.1	17.2	170.4
1964.....	10.8	156.0	31.5	156.8	59.6	171.1	14.1	153.1	18.1	178.7

Consumer Price Indexes for Regional Cities.—Table 9 gives regional consumer price indexes for ten cities or city combinations. These indexes do not show whether it costs more or less to live in one city than in another and should not be used for such comparisons. Their function is to measure percentage changes in retail prices—over a certain time in each city or city combination—of a fixed basket of goods and services representing the level of consumption of a particular group of families.

9.—Consumer Price Indexes for Regional Cities, 1955-64

(1949=100)

Year	St. John's, Nfld. (1951 = 100)	Halifax, N.S.	Saint John, N.B.	Mont- real, Que.	Ottawa, Ont.	Toronto, Ont.	Winnipeg, Man.	Saskatoon- Regina, Sask.	Edmonton- Calgary, Alta.	Vancouver, B.C.
1955.....	104.2	114.8	117.7	116.9	117.2	118.8	115.9	114.6	114.6	117.9
1956.....	106.8	116.1	118.8	118.4	119.2	120.6	117.2	115.8	115.7	119.6
1957.....	109.4	119.8	122.6	121.8	123.2	125.2	120.0	119.1	118.8	122.6
1958.....	112.0	122.9	125.3	125.5	125.5	128.6	123.0	122.0	121.4	125.6
1959.....	114.3	125.9	127.7	126.9	126.9	128.9	123.7	123.1	123.0	127.9
1960.....	115.5	127.2	129.2	127.9	128.6	130.4	125.6	124.4	124.1	129.0
1961.....	116.7	128.5	130.2	129.3	130.2	131.2	127.5	125.4	125.0	129.4
1962.....	117.6	130.2	131.4	130.9	131.7	132.4	129.1	127.5	126.2	129.8
1963.....	120.0	131.5	133.4	133.0	134.0	134.6	130.3	128.5	127.6	131.8
1964.....	121.3	132.0	134.8	135.1	136.0	136.9	132.3	129.8	128.2	132.7

World Retail Price Indexes.—In order to place changes in Canadian retail prices in perspective with those occurring elsewhere, Table 10 provides consumer price indexes for selected countries for 1962, 1963 and 1964. These indexes measure price changes only within each country and should not be used to compare actual levels of living costs from country to country.

10.—Consumer Price Index Numbers in Canada and Other Countries, 1962-64

(1958=100)

SOURCE: *United Nations Monthly Bulletin of Statistics*, June 1965

Country	1962	1963	1964	Country	1962	1963	1964
Belgium.....	104	106	111	Iran.....	127	128	132
Brazil (São Paulo).....	390	675	1,266	Ireland.....	108	110	117
Britain.....	110	112	115	Korea, Republic of (Seoul)...	129	156	201
Canada.....	104	106	108	Netherlands.....	108	113	119
Chile (Santiago).....	190	274	399	New Zealand.....	109	111	115
Denmark.....	115	122	125	Norway.....	111	114	120
Dominican Republic (Santo Domingo).....	101	110	112	Sweden.....	112	115	119
France (1962=100).....	100	105	108	Switzerland.....	107	111	114
Germany, Federal.....				Turkey (Istanbul).....	143	153	157
Republic of.....	108	111	114	United Arab Republic (Cairo).....	98	99	103
Greece (1959=100).....	103	106	107	United States.....	105	106	107
India.....	112	115	131				

Section 3.—Consumer Expenditure

A continuing program of surveys of family expenditure in urban areas was begun in 1953 and surveys were conducted since then at two-year intervals up to and including 1959. No expenditure surveys were taken in 1961, the decennial census year, but the regular program was resumed in 1962, when monthly surveys of food expenditure were made throughout the year, and a recall survey of the complete budget was made in February and March 1963. Early in 1965 a recall survey of the complete budget was made referring to the calendar year 1964.

The primary purpose in most of these surveys was to collect information for reviewing and revising, when necessary, the weights of the consumer price index. Therefore the surveys, with the exception of those for 1959 and 1964, have been restricted to cover only the families comparable in composition and income level to the consumer price index target group which was selected for index number purposes from a nation-wide survey conducted in 1947-48. For each of the four survey periods covering 1953, 1955, 1957 and 1962, respectively, the program consisted of a series of monthly surveys in which the major objective was the collection of detailed expenditure data on food, followed by a recall survey of all expenditures and income for the same calendar year. In the 1959 and 1964 survey programs, the monthly surveys were omitted and larger recall surveys were made referring, in 1959, to all families and individuals in cities with populations of 15,000 or over and, in 1964, to all families and individuals in 11 cities. Detailed results for each survey have been published in two series of occasional publications of which the latest are: *Urban Family Food Expenditure, 1962* (Catalogue No. 62-516) and *Urban Family Expenditure, 1959* (Catalogue No. 62-521).

Summary results of the 1959 survey appear in the 1962 Year Book at pp. 934-937. Summary results of the 1962 survey of family food expenditure appear in the 1965 edition, pp. 902-903. Results of the 1962 survey of the complete budget were not available at the time of printing but will be published in *Urban Family Expenditure, 1962*.

Section 4.—Security Price Indexes

Security price indexes measure, through time, the effect of price change on the value of a portfolio of stocks bought and held by a hypothetical investor (as opposed to the more speculative trader). The portfolio represents stocks of Canadian companies listed on the Toronto, Montreal and Canadian stock exchanges. In the case of the mining and

the two supplementary indexes (primary oils and gas, and uraniums), eligible issues are for producing mines and wells only. The number of shares held for each issue is in proportion to the total number of shares outstanding. Prices in the weekly common stock indexes (investors, mining and supplementary indexes) are Thursday's closing quotations. For the monthly preferred stock indexes, prices are monthly weighted averages of the daily closing prices in which weights are daily total sales. The indexes express current prices as a percentage of prices in 1956. Monthly and certain weekly indexes appear in DBS monthly publication *Prices and Price Indexes* (Catalogue No. 62-002) and a weekly DBS report gives indexes on a weekly basis for all groups and sub-groups.

The investors index is comprised of three major groups, with relative importance indicated by percentage weights as follows: industrials, 67.5; utilities, 18.6; and finance, 13.9. Each major group is further divided into industry sub-groups corresponding to the standard industrial classification, adopted as the basis of classification in the revision of the index to the 1956 = 100 base. The mining index is composed of two groups: base metals with a weight of 64.6 p.c. and golds with a weight of 35.4 p.c. The two supplementary indexes of common stocks—primary oils and gas, and uraniums—and the index of preferred stocks are not divided into component groups.

11.—Index Numbers of Common Stock Supplementary Indexes and Prices of Mining Stocks, by Month, 1963 to Mid-1965

(1956=100)

Year and Month	Supplementary Indexes		Mining Stocks		
	Primary Oils and Gas	Uraniums	Golds	Base Metals	Composite
1963					
January.....	65.9	86.8	105.3	84.9	92.1
February.....	62.4	91.7	111.6	82.7	92.9
March.....	63.4	89.5	109.6	83.7	92.9
April.....	67.9	92.4	107.8	85.2	93.2
May.....	68.7	97.5	106.2	85.0	92.5
June.....	64.3	96.1	107.6	81.5	90.8
July.....	62.9	90.5	109.5	80.5	90.8
August.....	62.8	89.7	111.8	79.0	90.6
September.....	66.5	93.0	112.8	80.2	91.8
October.....	67.1	93.4	106.5	81.5	90.3
November.....	66.6	89.7	102.0	79.6	87.6
December.....	66.6	85.0	100.2	78.9	86.5
1964					
January.....	69.5	86.4	104.5	82.5	90.3
February.....	71.6	87.4	105.3	85.0	92.2
March.....	72.2	90.4	107.6	90.2	96.4
April.....	78.7	89.8	106.9	93.0	97.9
May.....	82.1	83.6	109.8	93.1	99.0
June.....	80.5	77.8	111.4	88.2	96.4
July.....	83.3	78.1	112.4	92.1	99.3
August.....	83.7	79.0	112.8	94.5	101.0
September.....	87.0	85.3	115.6	97.9	104.2
October.....	85.1	84.0	125.0	102.6	110.5
November.....	88.5	80.3	130.4	104.0	113.4
December.....	86.3	86.1	138.5	98.5	112.6
1965					
January.....	89.2	104.5	142.6	104.8	118.2
February.....	91.8	114.0	138.0	106.5	117.6
March.....	96.2	109.7	139.2	108.0	119.0
April.....	102.7	118.5	136.5	108.6	118.5
May.....	108.9	134.8	130.2	108.3	116.0
June.....	100.7	130.7	127.1	100.6	110.0

12.—Investors Index Numbers of Common Stocks, by Month, 1963 to Mid-1965
(1956=100)

Year and Month	Industrials							Utilities					Finance			Investors Composite Index								
	In- dus- trial Mines	Foods	Bev- erages	Text- ile and Cloth- ing	Pulp and Paper	Print- ing and Pub- lish- ing	Pri- vate Met- als	Metal Fab- ricat- ing	Non- me- tallic Min- erals	Pet- ro- leum	Chem- icals	Con- struc- tion	Retail Trade	Indus- trial Total	Trans- por- ta- tion		Pipe- lines	Tele- phone	Elec- tric Power	Gas Dis- trib- ution	Util- ities Total	Banks	Invest- ment and Total Loan	In- vest- ment and Total Loan
1963																								
Jan.....	130.4	171.9	189.1	171.1	121.2	306.8	88.4	101.4	113.7	100.1	121.8	81.0	167.8	129.8	87.2	144.7	123.3	125.4	136.4	130.0	143.7	171.5	153.3	133.2
Feb.....	125.6	172.2	189.0	185.4	124.0	305.8	88.4	102.9	128.6	97.0	126.3	78.6	164.2	129.0	87.8	144.8	122.3	125.6	136.4	130.1	138.2	165.5	147.7	131.8
Mar.....	126.4	171.9	188.0	187.2	122.7	318.6	87.7	101.6	122.6	97.0	126.3	78.6	164.2	129.0	87.8	144.8	122.3	125.6	136.4	130.1	138.2	165.5	147.7	131.8
Apr.....	131.4	176.4	190.6	208.1	132.8	322.0	96.1	107.6	134.6	98.6	137.7	77.6	162.9	139.0	89.6	148.5	127.8	129.8	135.7	145.6	169.3	153.9	148.7	132.3
May.....	136.6	180.5	195.2	222.6	135.2	329.0	100.9	111.7	136.1	103.1	134.4	79.3	181.7	139.0	90.7	156.3	130.5	130.5	140.2	147.2	172.5	156.1	142.1	137.6
June.....	133.6	175.5	197.2	218.5	132.0	329.4	100.4	108.7	135.1	99.3	128.8	74.0	180.9	137.4	93.3	155.3	128.3	128.3	139.0	144.9	166.7	152.5	139.9	139.9
July.....	128.6	170.3	190.6	211.1	127.8	313.9	98.2	106.9	131.3	96.3	123.0	71.2	178.1	135.0	103.1	155.8	128.3	127.9	137.0	144.9	166.7	152.5	139.9	139.9
Aug.....	128.9	167.7	186.9	211.0	124.6	298.8	94.7	103.9	127.8	96.7	121.9	68.5	173.7	130.7	102.1	151.6	128.3	126.6	134.7	136.6	151.4	147.4	135.8	135.8
Sept.....	135.1	173.6	192.0	216.6	131.0	312.8	97.9	109.7	133.2	100.1	127.2	62.4	177.6	136.0	107.5	157.4	128.3	126.6	134.7	136.6	151.4	147.4	135.8	135.8
Oct.....	131.7	177.3	192.8	224.3	136.8	308.3	103.3	110.9	133.2	100.3	135.8	63.1	185.3	137.6	113.5	161.4	122.8	124.9	227.1	139.5	140.6	157.9	146.7	139.3
Nov.....	134.0	177.6	190.8	234.9	133.8	304.0	99.5	108.1	133.8	100.6	136.8	64.2	180.8	136.5	115.5	156.2	122.2	120.1	222.1	137.0	138.2	157.0	144.8	137.8
Dec.....	140.5	174.2	192.1	246.1	136.5	301.0	100.7	110.7	131.0	101.4	138.9	60.1	185.8	139.2	117.9	155.0	122.6	120.9	225.3	137.6	139.4	155.9	145.2	139.8
1964																								
Jan.....	152.0	179.6	199.2	253.9	143.6	308.8	106.6	114.2	137.1	104.8	139.1	61.0	194.2	146.2	121.3	161.8	122.9	125.6	236.0	141.6	141.3	162.4	145.8	145.8
Feb.....	152.6	178.8	197.8	247.6	144.3	310.7	107.9	113.8	139.7	104.4	139.7	62.0	192.5	146.3	117.8	161.8	122.4	125.9	232.4	140.6	137.4	163.2	145.4	145.4
Mar.....	156.0	181.6	201.3	259.0	145.6	311.7	109.9	118.8	140.4	105.4	152.7	58.7	196.8	149.3	122.6	164.4	119.5	128.1	227.8	140.8	137.4	163.2	145.8	145.4
Apr.....	165.3	188.5	211.3	268.9	156.2	312.7	113.2	126.5	148.2	112.5	155.7	61.6	212.7	158.0	134.4	169.3	124.7	130.6	227.0	146.7	138.7	164.9	147.8	154.4
May.....	171.2	193.1	217.0	280.4	163.2	322.2	118.0	140.9	156.2	116.0	157.1	67.0	224.7	164.4	147.6	176.6	131.2	137.4	233.9	154.0	142.4	165.9	150.6	160.1
June.....	166.7	197.3	218.5	267.7	162.4	324.4	120.0	152.4	156.7	114.5	163.4	69.6	228.1	164.0	149.4	178.6	131.2	137.4	233.9	154.0	142.4	165.9	150.6	160.1
July.....	170.6	198.2	231.5	285.9	167.7	330.6	122.0	152.5	157.1	116.9	175.1	73.3	242.5	169.1	151.3	185.2	133.0	136.0	246.6	157.2	144.5	170.4	153.5	164.8
Aug.....	174.8	193.5	229.9	303.3	168.8	329.7	122.8	144.8	157.1	116.7	177.0	73.1	243.1	168.3	151.8	184.7	132.0	133.4	255.0	167.3	149.2	169.8	156.4	166.8
Sept.....	174.8	193.5	230.1	310.2	173.2	330.3	124.3	144.0	154.1	121.2	187.9	77.9	243.1	170.5	167.5	186.4	133.4	133.4	254.7	167.3	149.2	174.8	157.3	170.8
Oct.....	184.2	195.4	231.3	325.8	178.7	333.8	125.5	144.6	155.2	121.2	190.9	77.8	254.0	175.4	171.3	191.1	137.7	136.4	256.0	167.0	147.9	175.8	157.3	170.8
Nov.....	189.2	197.5	235.8	333.2	173.7	352.0	123.4	146.4	153.2	126.0	190.9	78.2	258.5	178.1	174.4	182.9	142.0	135.6	257.3	167.0	149.7	177.8	159.5	173.6
Dec.....	182.2	196.7	231.6	336.8	164.3	349.4	119.1	139.7	164.6	123.0	187.1	76.5	257.1	173.1	178.8	188.9	141.7	125.4	263.5	161.0	148.6	175.4	157.9	169.4
1965																								
Jan.....	186.0	203.6	243.5	370.5	173.4	359.4	129.0	147.1	178.4	127.7	193.1	85.2	271.5	181.0	202.6	186.2	148.4	127.4	285.7	173.5	151.0	184.8	162.7	177.2
Feb.....	184.7	205.9	250.3	370.4	173.7	367.4	128.6	147.2	180.5	127.9	193.7	87.9	276.3	182.0	213.1	190.9	144.5	127.2	281.0	172.0	152.8	187.7	164.9	177.8
Mar.....	191.4	212.4	254.7	383.2	174.7	383.9	130.4	148.5	180.8	125.8	200.4	89.1	278.7	185.3	210.8	187.4	145.7	128.0	281.0	171.6	152.2	187.0	164.9	177.8
Apr.....	195.7	221.1	268.2	386.4	173.3	403.3	133.3	151.5	179.2	124.8	193.9	89.1	272.3	187.5	205.2	185.2	142.6	131.8	278.7	169.8	148.3	183.3	160.4	180.5
May.....	200.2	227.8	262.5	382.5	167.8	425.7	137.5	146.6	181.5	124.9	193.1	92.1	284.2	190.7	203.6	189.6	142.9	137.2	284.8	173.2	149.8	187.1	163.7	183.7
June.....	190.8	217.4	232.9	353.1	157.3	413.9	127.1	138.3	170.5	117.4	182.6	84.8	269.4	180.2	194.2	179.6	138.8	131.7	283.7	166.3	140.5	177.0	153.2	174.0

13.—Index Numbers of Preferred Stocks, by Month, 1956-65

(1956=100)

NOTE.—Figures for 1927-45 are given in the 1948-49 Year Book, p. 958, and for 1946-55 in the 1956 edition, p. 1045.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly Av.
1956.....	105.6	105.5	104.5	102.9	100.9	100.0	100.8	99.9	97.3	95.5	94.5	92.9	100.0
1957.....	93.8	94.1	93.1	92.3	92.1	90.7	90.3	89.9	88.6	87.9	88.8	90.9	91.0
1958.....	92.7	94.1	94.8	95.4	97.2	98.6	97.7	98.3	98.6	97.9	97.9	96.1	96.6
1959.....	95.1	96.0	96.1	96.3	97.4	96.6	96.8	95.8	93.4	90.9	90.3	90.2	94.6
1960.....	89.8	89.5	88.6	88.2	89.6	91.7	93.3	94.1	94.8	94.8	94.6	94.3	91.9
1961.....	95.0	95.2	94.9	96.0	97.1	97.7	98.4	98.3	99.5	100.7	100.6	99.9	97.8
1962.....	101.0	100.9	101.3	101.6	102.0	99.3	96.6	97.0	97.3	96.8	98.1	99.3	99.3
1963.....	102.0	101.5	101.2	101.9	103.9	103.5	102.2	101.6	101.6	102.4	102.6	102.7	102.3
1964.....	102.3	102.4	102.0	102.4	102.2	102.8	103.5	103.6	104.3	104.8	105.7	105.6	103.5
1965.....	106.3	106.8	105.2	104.0	103.7	103.5	102.8	101.3	100.9	100.6	100.0	98.1	102.8

CHAPTER XXII.—FOREIGN TRADE

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

The subject of foreign trade covers more than the treatment of exports and imports of commodities, important though this is. In its broader sense, foreign trade is made up of the total international interchange of goods, services, securities and other financial transactions, all of which are presented in their appropriate relationship in this Chapter and in Section 4 of Chapter XXIV. Following Part I, which is a review of Canada's commodity trade during 1964-65, Part II gives detailed statistics of that trade. Part III outlines the various ways in which the Federal Government promotes and encourages trade relationships, and contains a brief review of the Canadian tariff structure. Part IV contains a review of the extent of travel between Canada and other countries in 1964, with estimates of the amount of money expended for that purpose.

PART I.—CANADIAN MERCHANDISE EXPORTS AND IMPORTS IN 1964-65*

During 1964, business expansion continued in most of the countries with which Canada trades and Canadian exports rose at an accelerated rate. The increase over 1963 of \$1,324,000,000, or 19 p.c., compares with one of \$632,000,000 in 1963 over 1962 and was the sixth successive and substantial increase since the present phase commenced in 1959; it brought the aggregate increase in the six-year period to 69 p.c. in terms of value and 56 p.c. in terms of physical volume. Export prices, as measured by the unit value index, rose a little more than in 1963 but by only 1.4 p.c.

* Prepared by G. S. Watts, Research Department, Bank of Canada, Ottawa.

1.—Canadian Merchandise Exports, by Main Commodities or Groupings, 1960-64

(Millions of dollars)

Group or Commodity	1960	1961	1962	1963	1964
Farm and Fish Products—					
Wheat and wheat flour.....	473	724	659	849	1,124
Barley, oats and rye.....	61	58	46	54	72
Other farm and fish products.....	484	518	559	561	648
Totals, Farm and Fish Products.....	1,018	1,301	1,264	1,464	1,844
Forest Products—					
Softwood lumber.....	323	335	371	427	450
Wood pulp.....	325	347	370	405	461
Newsprint.....	758	761	753	760	834
Other forest products.....	181	180	207	232	263
Totals, Forest Products.....	1,587	1,623	1,701	1,824	2,009
Minerals and Mineral Products—					
Iron ore.....	155	143	221	271	356
Primary iron and steel.....	161	157	182	197	249
Aluminum and products.....	269	252	294	316	327
Copper, nickel and products.....	473	535	523	530	604
Lead, zinc and products.....	90	86	87	83	153
Crude petroleum and natural gas.....	112	194	305	310	360
Uranium ores and concentrates.....	244	193	166	138	75
Other metals and minerals.....	289	301	306	325	371
Totals, Minerals and Mineral Products.....	1,814	1,861	2,063	2,169	2,493
Chemicals and fertilizers.....	238	251	248	268	308
Other manufactures and miscellaneous.....	600	719	902	1,073	1,441
Exports of foreign produce.....	129	140	169	182	209¹
Totals, Exports.....	5,387	5,895	6,348	6,980	8,304

¹ See reference to "General Trade" basis, p. 914.

Prominent among the reasons for this unparalleled increase in exports was the \$275,000,000 expansion in wheat and flour exports associated with the completion of the 1963-64 contract with the Soviet Union together with larger shipments to mainland China and Eastern Europe. However, omitting this item, the remaining increase of over \$1,000,000,000 was of exceptional proportions and was shared extensively by all the main export groups except uranium which continued its declining trend, and aluminum which showed only a small increase. The increase in "Other manufactures and miscellaneous" of \$368,000,000 was particularly notable; it was much the largest increase on record for this group and brought the 1964 group total to double its 1961 level and to triple the level of a decade previously. Of the 1964 increase, \$142,000,000 was accounted for by aircraft and parts, \$88,000,000 by automobiles and parts and \$24,000,000 by farm implements; the remainder, amounting to over \$100,000,000, was widely distributed.

The pattern of distribution of exports by area in 1964 reflected the change in product components. As a result, partly but by no means wholly, of sharply expanded wheat exports, the proportion of overseas exports went up 3 p.c. in 1964 to account for 47 p.c. of

the total, the highest proportion since 1949. Apart from overseas countries to which exports were particularly affected by wheat contracts, the main increases were to Western Europe, Britain, Central America and the Antilles, Australia and Japan.

Imports, which did not begin their latest cyclical rise until 1961, also increased at a sharply accelerated rate in 1964. The increase over 1963 of \$930,000,000, or 14 p.c., was more than double that of any one of the previous three years and was in line with the higher levels of domestic business activity. The increase in import prices, as measured by the unit value index, was of the order of 1.9 p.c., substantially less than in the two preceding years. Whereas exports rose by 56 p.c. in physical volume in the six years since 1958, the increase in imports by 1964 was about 31 p.c.

The introduction of the new import classification in 1964 (see p. 915) makes it difficult to compare the pattern of the increase in imports with earlier years in some instances. Fuels and lubricants rose very slightly but industrial materials showed a substantially greater increase than in 1963. As usually occurs during the development phase of an extensive investment boom, investment goods imports rose strongly, accounting for almost 40 p.c. of the total increase in imports. The rise tended to be concentrated in machinery and parts, with other classes such as electrical equipment, transportation equipment and construction materials, etc., rising by lesser amounts. Consumer goods accounted for 30 p.c. of the increase in imports, just under half of it occurring in automobiles and parts.

The regional distribution of imports showed a further swing to the United States as the principal source in 1964. The United States accounted for 69 p.c. of all imports and overseas countries for 31 p.c. compared with 68 p.c. and 32 p.c., respectively, in 1963. However, there has been no great change in the ratio since the late 1950's and it is lower than that prevailing in earlier years. Although imports from the United States increased by 16 p.c. in 1964 and those from Britain by 9 p.c., imports from other countries also continued to attain new records, rising by 10 p.c. Imports from most Western European countries were substantially higher as were those from Japan, and there were also increased imports from Africa, Latin America and Eastern Europe, but imports from oil-producing Middle East countries were lower than in 1963.

The relatively strong behaviour of exports led to a doubling in the export balance from \$422,000,000 in 1963 to \$815,000,000 in 1964, the latter being the fourth successive year with an export balance and recording the highest such balance in many years.

In the first half of 1965, exports continued to advance but at a much slower rate, amounting to \$4,019,000,000 compared with \$3,935,000,000 in the same period of 1964, an increase of only 2 p.c. Aside from wheat, exports of which were lower by \$222,000,000 than in the first half of 1964, the rise in exports was 9 p.c. Imports, on the other hand, rose by 10 p.c. in the same comparison, a somewhat slower rate than in 1964 as a whole. The result was an import balance of \$56,000,000 in the first half of 1965 compared with an export surplus of \$233,000,000 in the first half of 1964.

Table 2, listing leading countries in world trade, by value of trade and trade per capita, indicates that Canada retained fifth position in order of magnitude for exports and advanced from seventh to sixth place in imports. On the basis of total trade, Canada continued to occupy fifth place. On a per capita basis, Canada's position in 1964 was seventh for exports, ninth for imports and eighth for total trade.

2.—Leading Countries in World Trade, by Value of Trade and Trade per Capita, 1964

SOURCES: International Monetary Fund, *International Financial Statistics*, September, 1965; and United Nations Statistical Office, *Population and Vital Statistics Reports*, Series A, Vol. XVII, Nos. 2 and 3.

Exports, f.o.b.			Imports, c.i.f.			Total Trade		
Country	1963	1964	Country	1963	1964	Country	1963	1964
VALUE OF TRADE (Millions of U.S. dollars)								
World Total ¹	135,500	151,900	World Total ¹	143,000	159,100	World Total ¹	278,500	311,000
1. United States.....	23,393 ²	26,552 ²	1. United States.....	18,590	20,251	1. United States.....	41,983 ³	46,833 ³
2. Germany, Federal Republic.....	14,621	16,221	2. Britain.....	13,476	15,438	2. Germany, Federal Republic.....	27,643	30,839
3. Britain.....	11,857	12,341	3. Germany, Federal Republic.....	13,022	14,618	3. Britain.....	25,333	27,779
4. France.....	8,085	8,985	4. France.....	8,727	10,070	4. France.....	16,812	19,095
5. Canada.....	6,779	8,092	5. Japan.....	6,737	7,938	5. Canada.....	13,297	15,647
6. Japan.....	5,453	6,674	6. Canada.....	6,618	7,555	6. Japan.....	12,190	14,612
7. Italy.....	5,055	5,956	7. Italy.....	7,590	7,231	7. Italy.....	12,645	13,187
8. Netherlands.....	4,961	5,807	8. Netherlands.....	5,966	7,055	8. Netherlands.....	10,927	12,862
9. Belgium and Luxembourg.....	4,839	5,590	9. Belgium and Luxembourg.....	5,112	5,901	9. Belgium and Luxembourg.....	9,951	11,491
10. Sweden.....	3,202	3,674	10. Sweden.....	3,393	3,855	10. Sweden.....	7,529	8,355
11. Australia.....	2,789	3,040	11. Switzerland.....	3,253	3,610	11. Australia.....	5,566	6,355
12. Venezuela.....	2,629	2,740	12. Australia.....	2,777	3,315	12. Switzerland.....	5,670	6,257
13. Switzerland.....	2,417	2,647	13. Denmark.....	2,128	2,614	13. Denmark.....	4,036	4,733
14. Denmark.....	1,908	2,119	14. India.....	2,471	2,435	14. India.....	4,100	4,784
15. Malaysia.....	2,020	1,813	15. Republic of South Africa.....	1,852	2,350	15. Venezuela.....	3,579	3,895
TRADE PER CAPITA ³ (U.S. dollars)								
1. Belgium and Luxembourg.....	503	576	1. Belgium and Luxembourg.....	532	608	1. Belgium and Luxembourg.....	1,035	1,184
2. Sweden.....	421	480	2. Switzerland.....	560	602	2. Netherlands.....	913	1,061
3. Netherlands.....	415	479	3. Netherlands.....	499	582	3. Switzerland.....	976	1,043
4. Denmark.....	407	449	4. Denmark.....	454	554	4. Denmark.....	862	1,003
5. Switzerland.....	416	441	5. Norway.....	497	536	5. Sweden.....	887	983
6. Trinidad and Tobago.....	405	426	6. Sweden.....	446	503	6. Norway.....	789	886
7. Canada.....	359	421	7. Trinidad and Tobago.....	408	448	7. Trinidad and Tobago.....	813	875
8. New Zealand.....	359	414	8. Hong Kong.....	391	405	8. Canada.....	709	813
9. Norway.....	293	349	9. Canada.....	350	393	9. New Zealand.....	714	785
10. Venezuela.....	323	325	10. New Zealand.....	356	370	10. Hong Kong.....	604	679
11. Finland.....	253	282	11. Ireland.....	302	342	11. Finland.....	519	610
12. Germany, Federal Republic.....	254	278	12. Israel.....	283	334	12. Australia.....	510	571
13. Hong Kong.....	243	274	13. Finland.....	266	298	13. Germany, Federal Republic.....	480	529
14. Australia.....	256	273	14. Australia.....	254	298	14. Ireland.....	495	561
15. Britain.....	221	228	15. Britain.....	251	285	15. Britain.....	472	513

¹ Excludes China, U.S.S.R., and those countries of Eastern Europe not currently reporting trade.
² Includes military aid extended to other countries.
³ Trading countries as listed by IMF except that Aden, the Netherlands Antilles and countries with neither exports nor imports amounting to U.S. \$100,000,000 in 1964 are excluded.

PART II.—FOREIGN TRADE STATISTICS*

Section 1.—Explanatory Notes on Canadian Trade Statistics

Sources.—Canadian foreign trade statistics are compiled from information recorded on customs documents received by the Dominion Bureau of Statistics from the various customs ports in Canada with the following exceptions: *electricity* exports are based on reports received from the National Energy Board and imports are based on reports received from public utility companies; and *crude petroleum exported by pipeline*, statistics for which are reported directly to the Bureau by the pipeline companies. Record is kept of value and, whenever possible, of quantity. In considering trade figures, it should be noted that the statistics do not necessarily reflect the financial transactions relating to the movement of goods since the method and time of payment are affected by many factors.

Coverage.—*Domestic exports or exports of Canadian produce* include exports of goods wholly produced in Canada together with exports of previously imported goods that have been changed in form by further processing in Canada. *Re-exports or exports of foreign produce* include previously imported goods that are exported from Canada in the same form as when imported. From January 1964, re-exports have also included exports from customs warehouses.

Imports, as from Jan. 1, 1964, include all goods cleared by customs immediately on arrival in Canada, plus goods entered into customs warehouses rather than cleared on arrival. For 1963 and earlier years, imports included goods cleared immediately on arrival plus goods cleared for consumption out of customs warehouses. The two types of record eventually cover the same totals, except for a small amount of goods entered into customs warehouses and then re-exported, but there may be an important difference in the time at which warehoused goods are recorded as imports; some shipments entering customs warehouses remain there for several months before clearance.

The most important exclusions from export totals are: current coin, gold, goods shipped to Canadian Armed Forces or diplomats stationed abroad, goods financed under the Defence Appropriation Act and shipped to other NATO countries, temporary exports for exhibition or competition, fuel and stores sold to foreign vessels and aircraft in Canada, settlers' effects, private donations and gifts, and identifiable tourist purchases—generally, all temporary exports and goods merely moving in transit through Canadian territory.

The most important exclusions from import totals are: current coin, gold, goods for use of the United States Armed Forces stationed at treaty bases in Canada, Canadian-owned military equipment returned to Canada, ships imported for use in foreign trade and ships of British construction and registry imported for use in the coasting trade, temporary imports for exhibition or competition, fuel and stores purchased by Canadian vessels and aircraft abroad, settlers' effects, private donations and gifts, tourist purchases exempt from duty, and goods imported for foreign armed forces or diplomats stationed in Canada—generally, all temporary imports and goods merely moving in transit through Canadian territory.

Beginning Jan. 1, 1964, Canada's trade statistics are compiled on a "General Trade" basis instead of on the "Special Trade" basis used previously. The main difference for figures recorded on the General Trade basis is that imports are entered as such whether the goods are cleared through customs for immediate domestic use or stored in a customs warehouse. Domestic exports remain the same on both bases but re-exports, after Jan. 1, 1964, include exports from customs warehouses which were previously excluded. Over a period of years, the totals of Canadian exports or imports would be almost the same on either basis but considerable differences might appear in individual years because of time of clearance and extent of business activity.

* Based on statistical reports published by the External Trade Division, Dominion Bureau of Statistics.

From Jan. 1, 1960, a new category was established in both export and import statistics entitled "Special Transactions—Non-trade". This category includes certain commodity movements which either have no international financial implications or, for various reasons, are better considered separately from merchandise trade in economic analysis. The value of transactions of these types is now excluded entirely from published totals of Canadian merchandise trade and do not appear in this volume, but statistics for the classes of this category are contained in the regular monthly export and import reports.

Beginning with statistics for January 1961, a new export commodity classification was used, based on the Standard Commodity Classification developed by the DBS as a tool for integrating statistical series derived from different sources. Whereas the classification previously used classified commodities primarily according to the material of which they were chiefly composed, the new classification places commodities in sections mainly according to stage of processing and purpose, as follows: Live Animals; Food, Feed, Beverages and Tobacco; Crude Materials, Inedible; Fabricated Materials, Inedible; End Products, Inedible; and Special Transactions—Trade.

As from Jan. 1, 1964, a new commodity classification was also introduced for import statistics, based on similar concepts to those embodied in the export classification, so that there is now a closer approach to comparability between the two sets of statistics. As part of the change to the new classifications, the commodity detail shown in trade returns has been modernized by eliminating statistics on some commodities of minor significance and instituting new classes for many commodities of greater importance. The grouping system employed in the new classification also makes easier the identification of other commodities which may merit separate specification. For most of the commodities of greatest importance in Canadian exports, the classes of the new export commodity classification are substantially identical with those of its predecessor. The import classification is more extensive than the export classification and in its new form gives an up-to-date and comprehensive coverage of those commodities which constitute the bulk of Canada's import trade.

Valuation.—Export entries define the value of exports as the "actual amount received or to be received in terms of Canadian dollars, exclusive of all charges" (freight, insurance, handling, etc.). This definition would give values f.o.b. point of consignment for export but in practice it is not always followed. For example, in recent years a significant but indeterminate proportion of exports has been reported in United States dollars, resulting in some overstatement of the value of exports for the period prior to June 1961 and some understatement of their value in subsequent years.

The value of goods imported is usually the value as determined for customs duty. The Canadian Customs Act generally requires the valuation of goods f.o.b. point of shipment in the country of export but, at least in recent years, importers have often reported c.i.f. value for free goods or goods subject to specific rates of duty. An effort is made to ensure that f.o.b. values are consistently used in import statistics in the following cases: goods subject to dumping duty (from January 1959); raw cotton and crude petroleum (from January 1962, retroactive to January 1960); raw sugar (from January 1963, retroactive to January 1961); and all shipments individually valued at \$100,000 or more (from January 1964). Only about one fifth of the value of imports is covered by these specific checks.

Country Classification.—Trade is credited to countries on the basis of consignment. For exports from Canada, the country of consignment is that country to which goods are, at the time of export, intended to pass without interruption of transit except in the course of transfer from one means of conveyance to another. For imports into Canada, the country of consignment is the country from which the goods came without interruption of transit except in the course of transfer from one means of conveyance to another. This is not necessarily the country of actual origin, since goods produced in one country may be imported by a firm in another country and re-sold to Canada; in such cases the second country is the country of consignment to which the goods are credited. There is one

exception to this rule; an attempt is made to classify by country of origin goods produced in South America, Central America, Bermuda and the Antilles and consigned to Canada from the United States. The effect of this procedure is to reduce slightly the imports credited to the United States and to increase those credited to South and Central American countries.

The country sub-totals include trade with Commonwealth and other countries entitled to Preferential rates of duty (the Republic of Ireland and the Republic of South Africa).

Discrepancies in Trade Statistics Between Canada and Other Countries.—Canada's statistics of exports are rarely in exact agreement with the import statistics of its customers and parallel differences occur with Canadian imports. Major factors contributing to these discrepancies include:—

- (1) Differences in the system of valuation used by Canada and those of other countries, especially with respect to the treatment of transportation charges.
- (2) Differences in the statistical treatment of special categories of trade, such as armaments and military supplies, government-financed gift or mutual aid shipments, postal and express shipments, or warehouse trade.
- (3) Differing definitions of territorial areas.
- (4) Differing systems of crediting trade by countries, notably the consignment system used by Canada and the actual origin or ultimate destination system in use by some other countries.
- (5) Differences in the time at which trade is recorded in the statistics of partner countries caused by the time required for goods to move from one country to another.

Section 2.—Total Foreign Trade

In considering the figures in Sections 2 to 5, reference should be made to the explanatory notes on trade in Section 1. Exports and imports of gold are excluded from all tables.

1.—Value of Total Foreign Trade of Canada (excluding Gold), 1950-64

NOTE.—Figures have been revised to cover the adjustment for "Special Transactions—Non-trade"; see p. 915.

Year	Exports			Imports			Balance of Trade: Excess of Exports (+) Imports (—)
	Domestic	Re-exports	Total	Dutiable	Free	Total	
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1950.....	3,104,016	38,620	3,142,636	1,621,534	1,503,697	3,125,231	+ 17,406
1951.....	3,897,082	48,847	3,945,929	2,174,304	1,830,635	4,004,939	— 59,011
1952.....	4,282,361	54,814	4,337,175	2,162,832	1,753,535	3,916,418	+ 420,757
1953.....	4,097,111	55,158	4,152,269	2,417,960	1,829,848	4,247,808	— 95,539
1954.....	3,860,217	65,604	3,925,821	2,311,568	1,655,833	3,967,401	— 41,580
1955.....	4,258,328	69,448	4,327,776	2,638,037	1,929,718	4,567,754	— 239,978
1956.....	4,760,442	73,335	4,833,777	3,292,516	2,254,435	5,546,951	— 713,175
1957.....	4,783,880	95,261	4,884,141	3,223,197	2,250,149	5,473,346	— 589,205
1958.....	4,791,436	102,907	4,894,343	2,952,707	2,097,785	5,050,492	— 156,150
1959.....	5,021,672	118,628	5,140,300	3,143,065	2,365,856	5,508,921	— 368,621
1960.....	5,255,575	131,217	5,386,792	3,048,583	2,434,112	5,482,695	— 95,903
1961.....	5,754,986	140,229	5,895,215	3,115,408	2,653,170	5,768,578	+ 126,637
1962.....	6,178,523	169,190	6,347,713	3,480,282	2,777,494	6,257,776	+ 89,937
1963.....	6,798,529	181,613	6,980,142	3,542,585	3,015,623	6,558,209	+ 421,933
1964.....	8,094,360	209,186	8,303,546	4,034,762	3,453,400	7,488,162	+ 815,384

Treatment of Gold in Trade Statistics.—The general use of gold as a money metal gives it peculiar attributes that distinguish it from other commodities in trade. In particular, international movements of gold are determined largely by monetary factors rather than by ordinary trade or commercial considerations. Gold is generally acceptable; it does not have to surmount tariff barriers and is normally assured a market at a fixed

minimum price. Also, gold may be bought or sold internationally without any physical movements of the metal, such transactions being recognized by simply setting aside or 'ear-marking' the metal in the vaults of some central bank.

For these reasons, movements of gold in a primary or semi-fabricated state are excluded from the totals of Canada's commodity trade. However, since gold is produced in Canada primarily as an export commodity, a series showing new gold production available for export is published as a supplement to the trade statistics. Because this series is calculated on a production basis, a division of the figures into transactions with individual countries is not possible.

2.—New Gold Production Available for Export, by Month, 1957-64

(Millions of dollars)

Month	1957	1958	1959	1960	1961	1962 ^r	1963 ^r	1964
January.....	13.6	14.7	11.7	14.5	14.1	8.4	13.1	12.8
February.....	12.4	17.7	16.1	15.0	14.2	18.1	13.1	10.9
March.....	11.7	11.1	9.8	14.3	12.8	14.5	14.8	9.6
April.....	10.7	10.7	14.1	9.4	13.3	9.2	11.5	15.4
May.....	15.1	12.9	12.9	12.4	15.2	17.6	12.4	10.6
June.....	5.0	14.7	13.8	13.3	13.9	12.8	13.9	14.7
July.....	12.7	13.6	11.4	11.7	12.7	10.5	12.3	8.9
August.....	3.4	11.4	11.1	14.4	14.8	16.2	11.5	14.0
September.....	9.9	12.6	10.3	15.7	13.1	11.6	12.3	12.6
October.....	16.0	13.9	9.4	12.3	11.1	12.6	15.0	10.5
November.....	16.1	11.4	12.6	11.7	16.3	14.1	12.6	10.5
December.....	17.1	12.4	15.1	16.8	10.7	9.6	11.4	14.3
Totals.....	143.7	157.1	148.3	161.5	162.2	155.2	153.7	144.8

Section 3.—Trade by Geographic Area

The tables in this Section provide information about Canada's total foreign trade by geographic region and by country.

3.—Trade of Canada with Commonwealth and Preferential Countries, and Other Countries, 1946-64

Item and Year	Britain		Other Commonwealth and Preferential Countries		United States ¹		Other Countries	
	Value	P.C. of Total	Value	P.C. of Total	Value	P.C. of Total	Value	P.C. of Total
	\$'000		\$'000		\$'000		\$'000	
Domestic Exports								
1946.....	594,138	26.1	301,411	13.3	884,066	38.9	492,390	21.7
1947.....	746,718	27.1	405,485	14.8	1,030,101	37.4	570,495	20.7
1948.....	683,249	22.4	337,880	11.1	1,498,552	49.1	532,409	17.4
1949.....	702,074	23.6	309,214	10.4	1,504,768	50.6	458,913	15.4
1950.....	467,896	15.1	197,654	6.4	2,020,703	65.1	417,763	13.4
1951.....	630,124	16.2	260,889	6.7	2,296,235	58.9	709,834	18.2
1952.....	744,461	17.4	283,809	6.6	2,302,673	63.8	951,418	22.2
1953.....	662,785	16.2	244,745	6.0	2,413,318	58.9	776,263	18.9
1954.....	651,033	16.9	202,561	5.2	2,308,670	59.8	697,953	18.1
1955.....	767,642	18.0	248,624	5.9	2,547,636	59.8	694,426	16.3
1956.....	811,113	17.0	252,117	5.3	2,803,085	58.9	894,127	18.8
1957.....	720,898	15.1	240,016	5.0	2,846,646	59.4	981,320	20.5
1958.....	771,576	16.1	290,125	6.1	2,808,067	58.6	921,667	19.2
1959.....	785,802	15.7	281,462	5.6	3,083,151	61.4	871,257	17.3
1960.....	915,290	17.4	333,815	6.4	2,932,171	55.8	1,074,300	20.4
1961.....	909,344	15.8	328,854	5.7	3,107,176	54.0	1,409,612	24.5
1962.....	909,041	14.7	331,004	5.4	3,608,439	58.4	1,330,040	21.5
1963 ^r	1,006,838	14.8	391,526	5.8	3,766,380	55.4	1,633,785	24.0
1964.....	1,199,779	14.8	493,871	6.1	4,271,059	52.8	2,129,651	26.3

¹ Includes Alaska and Hawaii.

3.—Trade of Canada with Commonwealth and Preferential Countries, and Other Countries, 1946-64—concluded

Item and Year	Britain		Other Commonwealth and Preferential Countries		United States ¹		Other Countries	
	Value	P.C. of Total	Value	P.C. of Total	Value	P.C. of Total	Value	P.C. of Total
Imports	\$'000		\$'000		\$'000		\$'000	
1946	137,423	7.5	135,601	7.4	1,387,386	75.3	180,857	9.8
1947	184,207	7.2	184,553	6.5	1,951,606	76.8	242,293	9.5
1948	293,535	11.2	203,932	7.8	1,798,507	68.7	322,302	12.3
1949	302,420	11.1	186,306	6.9	1,815,227	70.6	310,072	11.4
1950	400,811	12.8	241,124	7.7	2,089,531	66.9	393,765	12.6
1951	415,194	10.4	306,287	7.6	2,752,087	68.7	531,371	13.3
1952	351,541	9.0	184,345	4.7	2,887,628	73.7	492,904	12.6
1953	445,441	10.5	170,224	4.0	3,115,301	73.3	518,842	12.2
1954	382,229	9.6	181,884	4.6	2,871,279	72.4	532,010	13.4
1955	393,117	8.6	209,265	4.6	3,331,143	72.9	634,229	13.9
1956	476,371	8.6	220,808	4.0	4,031,394	72.7	818,378	14.7
1957	507,310	9.3	239,054	4.4	3,887,391	71.0	839,582	15.3
1958	518,505	10.3	210,016	4.2	3,460,147	68.5	881,824	17.0
1959	588,573	10.7	241,241	4.4	3,709,065	67.3	970,042	17.6
1960	588,932	10.8	281,167	5.1	3,686,625	67.2	925,971	16.9
1961	618,221	10.7	292,155	5.1	3,853,968	67.0	994,233	17.2
1962	563,062	9.0	318,501	5.1	4,299,539	68.7	1,076,673	17.2
1963 ¹	526,800	8.0	400,820	6.1	4,444,656	67.8	1,180,033	18.1
1964	573,973	7.7	405,819	5.4	5,164,383	69.0	1,343,987	17.9

¹ Includes Alaska and Hawaii.

4.—Trade of Canada, by Leading Countries, 1964, with Comparable Figures for 1962 and 1963

Rank in—			Item and Country	1962	1963	1964
1962	1963	1964				
Domestic Exports				\$'000	\$'000	\$'000
1	1	1	United States.....	3,608,439	3,766,380	4,271,059
2	2	2	Britain.....	909,041	1,003,838	1,199,779
3	3	3	Japan.....	214,535	296,010	330,234
4	5	4	Union of Soviet Socialist Republics.....	3,297	150,213	315,943
4	4	5	Germany, Federal Republic.....	177,688	170,969	211,501
6	7	6	Australia.....	104,965	100,773	145,812
5	6	7	China, Communist.....	147,438	104,738	136,263
7	8	8	Netherlands.....	76,940	87,009	101,582
10	10	9	Belgium and Luxembourg.....	68,169	76,493	100,535
11	12	10	France.....	57,561	63,428	79,433
14	13	11	Republic of South Africa.....	37,525	60,299	69,166
9	11	12	Norway.....	69,054	73,398	67,582
13	14	13	Mexico.....	41,267	55,572	65,151
12	16	14	Venezuela.....	42,328	46,328	64,075
16	15	15	India.....	29,633	53,900	64,042
15	21	16	Poland.....	37,391	27,200	62,653
8	9	17	Italy.....	74,521	76,761	62,236
30	30	18	Cuba.....	10,878	16,433	60,930
1	33	19	Czechoslovakia.....	3,522	13,289	54,230
18	18	20	New Zealand.....	26,784	30,549	33,714
24	25	21	Sweden.....	18,230	20,926	29,922
21	23	22	Jamaica.....	21,891	22,271	28,942
19	20	23	Switzerland.....	23,891	27,247	28,502
23	24	24	Philippines.....	18,545	21,284	27,809
20	17	25	Argentina.....	22,546	36,992	26,889
17	19	26	Brazil.....	28,481	29,432	22,985
27	29	27	Hong Kong.....	14,283	17,490	22,278
22	22	28	Colombia.....	19,887	23,348	21,252
25	26	29	Spain.....	15,416	20,500	21,235
31	27	30	Pakistan.....	10,755	19,152	20,031
Totals, 30 Leading Countries.....				5,934,901	6,515,222	7,745,765
Grand Totals, Domestic Exports.....				6,178,523	6,798,529	8,094,360

¹ Lower than 50th.

**4.—Trade of Canada, by Leading Countries, 1964, with Comparable
Figures for 1962 and 1963—concluded**

Rank in—			Item and Country	1962	1963	1964
1962	1963	1964				
Imports				\$'000	\$'000	\$'000
1	1	1	United States.....	4,299,539	4,444,556	5,164,383
2	2	2	Britain.....	563,082	526,800	573,973
3	3	3	Venezuela.....	224,275	243,495	270,621
5	5	4	Japan.....	125,359	130,471	174,381
4	4	5	Germany, Federal Republic.....	141,198	144,023	170,378
6	6	6	France.....	56,160	58,170	68,687
7	8	7	Italy.....	51,859	55,303	67,462
9	7	8	Australia.....	45,216	55,650	59,827
8	12	9	Belgium and Luxembourg.....	48,672	47,342	59,188
12	10	10	Jamaica.....	39,721	51,524	47,831
13	14	11	Netherlands.....	37,049	36,736	39,933
16	15	12	Brazil.....	31,600	36,361	39,533
19	17	13	Sweden.....	25,873	33,410	38,794
17	18	14	Switzerland.....	28,040	32,469	36,947
10	9	15	India.....	43,479	52,664	36,121
21	21	16	British Guiana.....	23,375	31,334	35,653
14	16	17	Netherlands Antilles.....	35,856	35,999	34,885
18	20	18	Malaysia.....	27,740	31,454	34,566
15	13	19	Iran.....	31,736	42,799	31,085
23	19	20	Republic of South Africa.....	16,952	31,548	28,774
24	23	21	Norway.....	16,109	23,492	27,335
22	24	22	Hong Kong.....	18,889	21,197	26,321
20	22	23	Mexico.....	24,416	23,734	23,612
27	25	24	Trinidad and Tobago.....	14,100	15,871	20,738
11	11	25	Saudi Arabia.....	40,551	50,290	18,553
28	29	26	Denmark.....	13,278	13,209	15,749
34	31	27	Panama.....	8,321	11,057	15,095
25	28	28	Colombia.....	15,658	13,576	14,889
29	27	29	New Zealand.....	12,005	14,067	14,076
26	26	30	Ceylon.....	14,763	14,642	13,413
Totals, 30 Leading Countries.....				6,074,851	6,323,243	7,202,803
Grand Totals, Imports.....				6,257,776	6,558,209	7,488,162

5.—Value of Domestic Exports, by Geographic Region and Country, 1957-64

Region and Country	1957	1958	1959	1960	1961	1962	1963*	1964
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Western Europe—								
Britain.....	720,898	771,576	785,802	915,290	909,344	909,041	1,006,838	1,199,779
Gibraltar.....	272	214	182	200	291	149	185	110
Ireland.....	8,379	8,690	8,156	7,706	11,588	10,329	10,461	15,072
Malta and Gozo.....	2,743	1,506	2,142	2,299	2,924	2,217	2,313	2,721
Austria.....	6,441	7,457	8,260	7,745	7,877	7,316	6,826	7,475
Belgium and Luxembourg.....	60,194	69,531	56,127	69,131	76,055	68,169	76,493	100,535
Denmark.....	3,487	4,859	5,449	4,978	4,813	6,087	6,811	7,484
Finland.....	909	2,312	2,739	4,355	6,085	5,240	7,277	4,458
France.....	57,030	44,688	43,157	72,907	71,923	57,561	63,428	79,433
Germany, Federal Republic.....	151,508	201,134	129,345	165,597	188,694	177,688	170,969	211,501
Greece.....	4,022	4,576	3,798	5,546	4,995	9,235	7,429	8,013
Iceland.....	268	310	279	243	219	287	347	10,459
Italy.....	62,685	29,718	31,717	68,393	67,688	74,521	76,761	62,236
Netherlands.....	69,553	74,721	53,849	62,554	61,297	76,940	87,009	101,582
Norway.....	55,491	55,849	62,308	61,595	69,744	69,054	73,398	67,582
Portugal.....	2,788	2,553	3,251	3,336	4,718	2,563	5,859	6,264
Spain.....	5,875	6,675	6,168	10,243	12,803	15,416	20,500	21,235
Sweden.....	11,964	10,866	14,879	20,906	17,654	18,230	20,926	29,922
Switzerland.....	24,894	29,243	25,728	26,404	22,422	23,891	27,247	28,502
Totals, Commonwealth and Preferential Countries.....	732,292	781,983	796,281	925,496	924,117	921,736	1,019,797	1,217,683
Totals, Other Countries.....	517,109	544,492	447,055	583,932	616,986	612,198	651,279	746,681
Totals, Western Europe.....	1,249,401	1,326,475	1,243,336	1,509,428	1,541,133	1,533,934	1,671,076	1,964,364

5.—Value of Domestic Exports, by Geographic Region and Country, 1957-64—continued

Region and Country	1957	1958	1959	1960	1961	1962	1963 ^a	1964
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Eastern Europe—								
Albania.....	1	1	1	1	5,845	3,053	2	10,873
Bulgaria.....	116	70	200	491	277	388	28	19,239
Czechoslovakia.....	1,401	1,342	4,937	6,767	32,654	3,522	13,289	54,230
Germany, Eastern.....	25	1	1	994	17,972	148	1,262	11,730
Hungary.....	289	384	1,115	931	564	350	374	1,919
Poland.....	16,632	560	15,631	16,665	36,819	37,391	27,200	62,653
Romania.....	429	1,171	1,157	1,326	1,037	514	1,275	540
Union of Soviet Socialist Republics.....	10,466	18,863	12,638	8,233	24,276	3,297	150,123	315,943
Yugoslavia.....	189	198	2,577	3,249	2,135	999	17,519	5,443
Totals, Eastern Europe..	29,727	22,587	38,255	38,658	121,579	49,662	211,071	482,568
Middle East—								
Bahrain.....	2	2	2	112	111	210	162	151
Cyprus.....	2	2	2	609	70	298	513	193
Qatar.....	2	2	2	55	72	213	246	279
British Middle East, <i>n.e.s.</i>	1	1	7	61	165	159	127	138
Ethiopia.....	117	77	72	220	120	105	139	236
Iran.....	1,700	1,648	2,242	2,499	4,457	5,293	3,568	3,972
Iraq.....	1,069	969	4,311	2,425	1,374	1,343	3,376	3,357
Israel.....	4,889	4,501	4,557	6,184	8,747	6,232	8,163	9,109
Jordan.....	56	73	72	131	308	145	244	245
Kuwait.....	2	2	2	1,091 ¹	941 ⁴	1,040 ⁴	2,748	934
Lebanon.....	924	2,073	3,182	3,443	2,484	2,244	2,365	2,516
Libya.....	180	156	382	333	151	376	690	907
Saudi Arabia.....	1,656	2,017	2,877	2,905	2,697	3,257	3,548	3,133
Somalia.....	6	—	193	2	12	3	22	1
Sudan.....	212	182	367	335	333	180	173	113
Syria.....	798	765	1,067	674	364	561	713	387
Turkey.....	450	1,400	693	2,014	1,943	978	2,378	1,581
United Arab Republic—Egypt.....	1,197	1,077	1,601	2,010	3,025	2,230	2,536	3,978
Totals, Commonwealth and Preferential Countries.....	1	1	7	1,927⁵	1,360⁵	1,920⁵	1,048	760
Totals, Other Countries.....	13,254	14,938	21,617	23,176	26,013	22,945	30,662	27,468
Totals, Middle East....	13,254	14,939	21,624	25,103	27,373	24,866	31,710	28,229
Other Africa—								
Gambia.....	6	6	6	6	6	6	212	71
Ghana.....	1,244	1,272	3,784	3,879	7,798	8,400	5,451	7,333
Kenya.....	743	472	806	936	586	680	1,003	911
Mauritius and Dependencies.....	145	107	68	77	95	94	218	94
Nigeria.....	1,492	308	938	2,305	3,272	6,997	3,234	6,292
Northern Rhodesia.....	7	7	7	7	7	7	826	1,031
Nyasaland.....	7	7	7	7	7	7	99	156
Republic of South Africa.....	48,322	49,960	51,243	52,655	37,819	37,525	60,299	69,166
Rhodesia and Nyasaland.....	4,925	3,894	2,851	4,088	3,396	3,367	8	8
Sierra Leone.....	490	501	725	641	810	1,200	1,298	1,329
Southern Rhodesia.....	7	7	7	7	7	7	3,637	3,150
Tanganyika.....	9	9	9	143	173	228	377	192
Uganda.....	9	9	9	86	66	137	148	259
British Africa, <i>n.e.s.</i>	36	15	57	200	156	161	52	31
Algeria.....	10	10	10	4,662	6,064	2,202	3,970	1,212
Angola.....	11	11	11	67	160	41	104	75
Cameroon.....	10	10	10	10	10	92	24	39
Congo.....	2,614	2,926	2,689	1,310	980	889	921	1,127
French Equatorial Africa.....	10	10	10	34	57	5	10	10
French West Africa.....	10	10	10	135	73	775	10	10
French Africa, <i>n.e.s.</i>	844	1,008	2,765	10	26	9	92	214
Gabon.....	10	10	10	10	19	61	15	146

¹ Less than \$500. ² Included with Saudi Arabia. ³ Included with Malta and Gozo. ⁴ Included with "Totals, Commonwealth and Preferential Countries". ⁵ Includes Kuwait. ⁶ Included with British Africa, *n.e.s.* ⁷ Included with Rhodesia and Nyasaland. ⁸ Beginning 1963, Northern Rhodesia, Southern Rhodesia, and Nyasaland. ⁹ Included with Kenya. ¹⁰ Included with French Africa, *n.e.s.* ¹¹ Included with Portuguese Africa, *n.e.s.*

5.—Value of Domestic Exports, by Geographic Region and Country, 1957-64—continued

Region and Country	1957	1958	1959	1960	1961	1962	1963 ^a	1964
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Other Africa—concluded								
Guinea.....	1	1	1	9	140	131	2	4
Ivory Coast.....	1	1	1	1	26	10	18	66
Liberia.....	1,551	652	217	644	501	816	1,100	5,518
Mauritania.....	3	3	3	3	3	3	258	169
Morocco.....	725	1,152	416	627	476	459	963	667
Mozambique.....	2,128	1,326	2,012	3,145	2,023	2,504	2,646	1,806
Portuguese Africa, <i>n.e.s.</i>	210	320	305	279	241	197	283	164
Spanish Africa.....	15	2	2	28	40	118	27	229
Togo.....	1	1	1	1	1	105	350	443
Tunisia.....	1	1	1	170	561	30	1,970	327
Totals, Commonwealth and Preferential Countries.....	57,397	56,529	60,473	65,010	54,172	58,790	76,853	90,012
Totals, Other Countries.....	8,086	7,386	8,406	11,121	11,385	8,449	12,738	12,207
Totals, Other Africa.....	65,482	63,915	68,878	76,130	65,558	67,239	89,591	102,219
Other Asia—								
Ceylon.....	3,205	5,459	4,931	2,479	3,709	2,007	2,636	4,724
Hong Kong.....	7,563	6,028	11,192	21,665	19,604	14,283	17,490	22,278
India.....	28,902	78,994	53,654	36,814	42,885	29,633	53,900	64,042
Malaysia.....	3,288	3,223	3,258	4,660	5,696	5,453	6,999	8,370
Pakistan.....	11,308	15,311	17,317	11,942	15,315	10,755	19,152	20,031
British East Indies, <i>n.e.s.</i>	185	112	95	360	457	435	4	4
Afghanistan.....	87	24	67	159	55	25	18	23
Burma.....	239	94	81	806	1,405	1,303	703	736
Cambodia and Laos.....	5	5	5	148	114	2	17	9
China, Communist.....	1,390	7,809	1,720	8,737	125,448	147,438	104,738	136,263
Indonesia.....	1,590	1,665	1,760	2,110	2,463	2,027	1,449	703
Japan.....	139,082	104,853	139,724	178,859	231,574	214,535	296,010	330,234
Korea.....	6,970	3,682	6,000	3,916	2,067	1,492	3,815	1,096
Philippines.....	17,516	14,077	14,863	14,809	15,645	18,545	21,284	27,809
Portuguese Asia.....	461	341	358	93	59	22	38	41
Portuguese India.....	6	6	6	385	445	7	7	7
Taiwan (Republic of China).....	1,641	1,161	1,692	2,886	2,219	4,387	3,759	6,178
Thailand.....	2,041	1,288	1,937	2,710	2,921	3,472	2,823	6,308
Viet-Nam.....	996	249	385	540	206	298	250	726
Totals, Commonwealth and Preferential Countries.....	54,452	109,127	90,447	77,920	87,755	62,566	100,176	119,445
Totals, Other Countries.....	172,011	136,095	169,324	216,159	384,622	393,546	434,903	507,623
Totals, Other Asia.....	226,463	245,222	259,771	294,079	472,376	456,112	535,079	627,068
Oceania—								
Australia.....	48,662	52,562	53,929	98,862	78,628	104,965	100,773	145,812
Fiji.....	578	814	727	808	607	705	759	891
New Zealand.....	16,842	15,008	13,306	23,858	31,125	26,784	30,549	33,714
British Oceania, <i>n.e.s.</i>	113	98	65	324	191	296	249	386
French Oceania.....	388	271	171	313	303	366	299	436
United States Oceania.....	208	138	167	640	1,293	3,084	3,693	1,261
Totals, Commonwealth and Preferential Countries.....	66,195	68,483	68,027	123,852	110,551	132,750	132,330	180,804
Totals, Other Countries.....	594	409	338	953	1,596	3,451	3,992	1,697
Totals, Oceania.....	66,789	68,892	68,365	124,805	112,147	136,201	136,322	182,501
South America—								
British Guiana.....	4,969	4,014	4,392	7,428	5,272	5,102	5,061	7,116
Falkland Islands.....	3	53	216	169	24	13	6	1
Argentina.....	14,158	6,428	7,002	19,364	30,893	22,546	36,992	26,899

¹ Included with French Africa, *n.e.s.*² Less than \$500.³ Included with French West Africa.⁴ Included with Malaysia.⁵ Included with Viet-Nam.⁶ Included with Portuguese Asia.⁷ In-

cluded with India.

5.—Value of Domestic Exports, by Geographic Region and Country, 1957-64—concluded

Region and Country	1957	1958	1959	1960	1961	1962	1963*	1964
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
South America—concluded								
Bolivia.....	934	414	324	323	353	363	628	985
Brazil.....	25,686	21,088	14,148	19,755	30,076	28,481	29,432	22,985
Chile.....	4,342	4,566	6,226	6,575	8,225	13,278	12,329	12,650
Colombia.....	14,587	13,813	17,668	16,590	19,525	19,887	23,348	21,252
Ecuador.....	2,782	3,185	3,864	3,913	3,922	3,777	3,913	5,719
French Guiana.....	5	2	2	2	15	5	2	4
Paraguay.....	171	183	114	120	69	41	211	485
Peru.....	10,091	11,441	11,632	8,891	8,188	8,140	11,641	10,749
Surinam.....	839	853	696	883	1,224	866	1,031	1,610
Uruguay.....	3,777	938	1,656	2,423	3,039	3,151	2,994	5,679
Venezuela.....	39,661	43,480	45,833	35,345	34,978	42,328	46,328	64,075
Totals, Commonwealth and Preferential Countries.....	4,971	4,067	4,608	7,597	5,296	5,115	5,067	7,117
Totals, Other Countries.....	116,963	106,392	109,166	114,184	140,507	142,863	168,848	173,090
Totals, South America.....	121,935	110,459	113,773	121,780	145,803	147,978	173,915	180,207
Central America and Antilles—								
Bahamas.....	2,487	2,541	3,083	3,357	3,798	5,010	6,133	8,876
Barbados.....	4,628	4,159	4,103	3,775	3,777	4,481	5,469	6,922
Bermuda.....	2,907	3,195	4,334	4,016	4,239	4,492	5,713	6,339
British Honduras.....	276	229	289	409	600	835	698	973
Jamaica.....	19,247	15,588	18,538	18,056	19,077	21,891	22,271	28,942
Leeward and Windward Islands..	4,297	4,248	4,437	4,720	4,828	5,642	6,596	7,986
Trinidad and Tobago.....	11,763	11,548	12,636	12,971	18,398	14,817	16,213	17,791
Costa Rica.....	2,360	2,879	2,633	2,983	2,931	3,473	3,651	3,841
Cuba.....	16,846	17,549	15,222	13,038	31,104	10,878	16,433	60,930
Dominican Republic.....	4,991	5,335	5,137	5,062	4,469	8,488	9,085	9,070
El Salvador.....	2,412	2,146	2,507	2,390	2,436	3,354	3,134	4,416
French West Indies.....	37	26	19	43	75	53	66	135
Guatemala.....	3,190	3,645	2,627	2,108	2,188	2,705	3,107	3,433
Haiti.....	2,191	2,079	1,319	1,529	1,543	1,277	1,525	1,485
Honduras.....	1,055	1,201	946	1,416	1,061	899	1,100	1,280
Mexico.....	42,477	31,429	27,633	38,033	38,529	41,267	55,572	65,151
Netherlands Antilles.....	1,312	1,583	1,193	1,131	1,239	1,793	2,406	2,355
Nicaragua.....	1,534	1,886	1,515	1,319	1,448	2,135	2,693	2,209
Panama.....	30,657	5,370	4,023	3,703	4,578	5,645	4,417	4,602
Puerto Rico.....	12,589	12,526	10,522	11,172	13,109	12,711	14,619	15,408
United States Virgin Islands.....	126	132	185	214	190	283	284	1,317
Totals, Commonwealth and Preferential Countries.....	45,605	41,507	47,421	47,304	54,917	57,167	63,093	77,829
Totals, Other Countries.....	121,779	87,786	75,540	84,127	104,900	94,961	118,092	175,612
Totals, Central America and Antilles.....	167,384	129,294	122,961	131,431	159,818	152,129	181,185	253,441
North America—								
Greenland.....	76	138	154	427	198	167	287	272
St. Pierre and Miquelon.....	1,722	1,444	1,403	1,563	1,825	1,799	1,913	2,431
United States ¹	2,846,646	2,808,087	3,083,151	2,932,171	3,107,176	3,608,439	3,766,380	4,271,059
Totals, North America.....	2,848,445	2,809,659	3,084,708	2,934,162	3,109,199	3,610,404	3,768,580	4,273,762
Grand Totals, Commonwealth and Preferential Countries..	960,914	1,061,701	1,067,263	1,249,104	1,238,198	1,240,045	1,393,364	1,693,650
Grand Totals, Other Countries	3,827,966	3,729,735	3,954,409	4,006,470	4,516,788	4,938,479	5,409,165	6,400,710
Grand Totals, All Countries..	4,788,880	4,791,436	5,021,672	5,255,575	5,754,986	6,178,523	6,798,529	8,094,360

¹ Includes Alaska and Hawaii.

6.—Value of Imports, by Geographic Region and Country, 1957-64

Region and Country	1957	1958	1959	1960	1961	1962	1963*	1964
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Western Europe—								
Britain.....	507,320	518,505	588,578	588,922	618,221	563,062	526,800	573,973
Gibraltar.....	—	1	1	2	1	—	—	13
Ireland.....	1,122	1,313	2,001	2,098	3,806	4,826	5,320	5,624
Malta and Gozo.....	64	62	174	22	25	36	232	113
Austria.....	4,239	4,640	5,707	6,605	6,636	7,971	9,026	9,595
Belgium and Luxembourg.....	43,681	35,759	44,786	41,401	44,780	48,672	47,342	59,188
Denmark.....	7,939	7,401	9,227	9,962	11,650	13,278	13,209	15,749
Finland.....	402	475	875	1,053	1,215	1,939	2,520	3,177
France.....	34,987	40,007	56,940	50,121	54,280	56,160	58,170	68,687
Germany, Federal Republic.....	92,527	102,644	123,905	126,988	136,530	141,198	144,023	170,378
Greece.....	399	316	310	538	545	1,094	1,631	1,550
Iceland.....	40	7	40	15	707	1,183	696	2
Italy.....	32,536	32,150	37,656	42,843	49,140	51,859	55,303	67,462
Netherlands.....	21,690	26,905	29,154	31,456	33,493	37,049	36,736	39,933
Norway.....	2,984	3,106	4,063	4,248	8,965	16,109	23,492	27,335
Portugal.....	2,750	3,045	3,116	3,208	4,917	5,998	7,713	9,414
Spain.....	5,541	6,681	5,627	6,947	8,543	8,463	8,496	11,704
Sweden.....	15,339	13,939	15,077	20,400	24,221	25,873	33,410	38,794
Switzerland.....	24,053	26,491	24,514	24,343	26,102	28,040	32,469	36,947
Totals, Commonwealth and Preferential Countries.....	508,505	519,881	590,748	591,054	622,053	567,924	532,352	579,723
Totals, Other Countries.....	289,106	303,566	363,996	370,138	411,722	444,887	471,236	559,915
Totals, Western Europe.....	797,611	823,446	954,744	961,191	1,033,775	1,012,811	1,006,588	1,139,638
Eastern Europe—								
Albania.....	—	—	—	1	—	—	—	—
Bulgaria.....	1	4	6	6	24	34	74	114
Czechoslovakia.....	5,013	4,908	6,440	6,654	8,405	9,033	9,204	12,847
Germany, Eastern.....	707	948	901	877	970	881	1,207	1,473
Hungary.....	168	701	237	338	393	417	557	761
Poland.....	1,050	1,131	1,643	1,971	3,194	4,792	6,788	9,280
Romania.....	1	4	35	84	261	61	124	82
Union of Soviet Socialist Republics.....	2,789	1,676	2,278	3,210	2,746	1,777	2,313	2,808
Yugoslavia.....	564	813	551	804	1,665	1,801	1,843	2,601
Totals, Eastern Europe.....	10,292	10,185	12,090	13,844	17,659	18,795	22,109	29,966
Middle East—								
Bahrain.....	2	2	2	—	1	—	1	—
Cyprus.....	3	3	3	180	194	151	88	48
Qatar.....	2	2	2	8,434	8,724	6,273	8,678	2,285
British Middle East, n.e.s.....	51	62	400	59	48	68	50	3,183
Ethiopia.....	61	18	44	43	4	5	21	141
Iran.....	535	915	11,948	30,740	21,622	31,736	42,799	31,085
Iraq.....	429	1,556	1,107	722	846	704	1,269	2,379
Israel.....	1,548	1,725	2,349	2,372	3,106	5,646	6,043	6,270
Jordan.....	4	1	1	1	3	1	3	10
Kuwait.....	2	2	2	22,303 ⁴	20,225 ⁴	10,034 ⁴	5,169	11,219
Lebanon.....	6	12	4	33	23	58	65	81
Libya.....	1	1	—	1	1	10	1	—
Saudi Arabia.....	34,315	68,021	70,725	37,402	41,393	40,551	50,290	18,553
Somalia.....	—	1	—	—	1	—	1	1
Sudan.....	45	80	438	83	76	105	148	113
Syria.....	238	200	183	127	263	455	362	492
Turkey.....	823	491	886	855	859	1,472	1,294	1,207
United Arab Republic—Egypt.....	229	179	200	846	474	301	224	125
Totals, Commonwealth and Preferential Countries.....	51	62	400	30,975 ⁵	29,192 ⁵	16,525 ⁵	8,823	5,516
Totals, Other Countries.....	38,232	73,198	87,887	73,224	68,668	81,044	107,688	71,675
Totals, Middle East.....	38,284	73,261	88,286	104,200	97,861	97,569	116,511	77,191

¹ Less than \$500.² Included with Saudi Arabia.³ Included with Malta and Gozo.⁴ Included with "Totals, Commonwealth and Preferential Countries".⁵ Includes Kuwait.

6.—Value of Imports, by Geographic Region and Country, 1957-64—continued

Region and Country	1957	1958	1959	1960	1961	1962	1963 ¹	1964
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Other Africa—								
Ghana.....	5,989	2,122	4,103	3,127	4,691	7,036	6,533	7,961
Kenya.....	4,970	5,057	4,261	2,561	3,629	3,157	5,323	7,397
Mauritius and Dependencies.....	10,278	5,918	7,584	2,100	5,600	5,215	8,606	13,394
Nigeria.....	2,352	2,372	3,084	4,358	3,504	5,726	7,024	11,264
Northern Rhodesia.....	1	1	1	1	1	1	1,306	37
Nyasaland.....	1	1	1	1	1	1	408	297
Republic of South Africa.....	6,777	7,914	6,564	11,482	12,202	16,952	31,548	28,774
Rhodesia and Nyasaland.....	1,080	1,373	966	981	1,318	3,272	2	2
Sierra Leone.....	9	2	1	5	8	22	5	3
Southern Rhodesia.....	1	1	1	1	1	1	6,320	4,279
Tanganyika.....	3	3	3	1,834	2,139	2,173	7,315	9,061
Uganda.....	3	3	3	1,277	2,325	2,213	3,144	4,582
British Africa, <i>n.e.s.</i>	4	4	4	5	53	7	4	3
Algeria.....	5	5	5	161	162	509	458	61
Angola.....	5	5	5	209	136	122	728	1,297
Cameroon.....	5	5	5	5	5	15	147	43
Congo.....	3,337	1,125	2,258	1,781	1,314	1,320	1,921	1,911
French Equatorial Africa.....	5	5	5	185	27	8	5	5
French West Africa.....	5	5	5	270	1	4	5	5
French Africa, <i>n.e.s.</i>	2,225	1,749	2,183	33	29	17	310	1,283
Gabon.....	5	5	5	5	658	1,123	859	687
Guinea.....	5	5	5	2,794	4,824	896	2,501	1,707
Ivory Coast.....	5	5	5	5	788	244	227	623
Liberia.....	7	147	39	6	144	40	106	327
Morocco.....	138	130	209	222	164	487	540	1,162
Mozambique.....	39	24	18	1	20	139	395	431
Portuguese Africa, <i>n.e.s.</i>	33	11	—	—	—	4	—	—
Spanish Africa.....	20	7	8	2	17	23	39	22
Togo.....	5	5	5	5	5	—	—	—
Tunisia.....	5	5	5	62	32	17	2	19
Totals, Commonwealth and Preferential Countries.....	31,456	24,759	26,563	27,729	35,469	45,772	78,423	87,052
Totals, Other Countries.....	5,799	3,195	4,715	5,728	8,327	4,962	8,234	9,553
Totals, Other Africa.....	37,251	27,954	31,278	33,456	43,796	50,734	86,667	96,605
Other Asia—								
Ceylon.....	14,910	12,863	15,133	15,556	16,516	14,763	14,642	13,413
Hong Kong.....	7,138	8,689	12,969	15,534	14,143	18,889	21,197	26,321
India.....	29,185	27,655	29,221	29,352	33,465	43,479	52,664	36,121
Malaysia.....	27,313	19,863	28,644	28,120	23,597	27,740	31,634	34,566
Pakistan.....	489	460	1,061	985	2,367	2,561	2,270	4,211
British East Indies, <i>n.e.s.</i>	120	129	390	261	297	511	7	7
Afghanistan.....	—	—	—	—	4	—	—	—
Burma.....	9	84	24	85	30	50	102	276
Cambodia and Laos.....	8	8	8	17	2	—	—	—
China, Communist.....	5,299	5,370	4,540	5,638	3,233	4,521	5,147	9,420
Indonesia.....	951	211	147	529	290	173	152	1,393
Japan.....	61,396	70,092	102,669	110,382	116,607	125,359	130,471	174,381
Korea.....	34	21	235	404	76	99	380	473
Philippines.....	3,957	2,177	1,440	1,966	1,517	1,447	2,007	2,970
Portuguese Asia.....	—	1	4	—	—	77	428	1,204
Taiwan (Republic of China).....	189	159	716	1,150	1,856	2,910	5,875	9,063
Thailand.....	609	643	649	842	582	1,031	582	582
Viet-Nam.....	5	3	8	5	9	7	1	4
Totals, Commonwealth and Preferential Countries.....	79,155	69,659	87,418	89,807	90,384	107,943	122,407	114,633
Totals, Other Countries.....	72,448	78,762	110,728	121,020	124,202	135,673	145,145	199,765
Totals, Other Asia.....	151,603	148,422	198,146	210,827	214,586	243,616	267,552	314,398

¹ Included with Rhodesia and Nyasaland.² Beginning 1963, Northern Rhodesia, Southern Rhodesia, and Nyasaland.³ Included with Kenya.⁴ Less than \$500.⁵ Included with French Africa, *n.e.s.*⁶ Included with Portuguese Africa, *n.e.s.*⁷ Included with Malaysia.⁸ Included with Viet-Nam.

6.—Value of Imports, by Geographic Region and Country, 1957-64—continued

Region and Country	1957	1958	1959	1960	1961	1962	1963 ¹	1964
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Oceania—								
Australia.....	28,572	32,755	41,080	35,508	36,649	45,216	55,650	59,827
Fiji.....	7,216	5,727	4,764	6,481	2,512	3,144	8,588	7,401
New Zealand.....	11,707	11,540	8,594	10,099	10,546	12,005	14,067	14,076
British Oceania, <i>n.e.s.</i>	—	160	157	—	—	—	5	6
French Oceania.....	19	1	1	—	40	—	1	3,550
United States Oceania.....	—	—	1	21	55	214	27	28
Totals, Commonwealth and Preferential Countries.....	47,495	50,182	54,595	52,087	49,706	60,365	78,310	81,310
Totals, Other Countries.....	19	1	1	21	96	214	27	3,586
Totals, Oceania.....	47,514	50,182	54,597	52,109	49,802	60,578	78,338	84,896
South America—								
British Guiana.....	20,988	20,627	18,033	18,921	23,020	23,375	31,334	35,653
Falkland Islands.....	—	—	1	8	8	—	—	—
Argentina.....	4,679	5,357	3,380	3,611	3,399	5,649	5,352	5,938
Bolivia.....	139	132	166	443	883	957	70	289
Brazil.....	35,276	27,419	28,479	24,883	29,081	31,600	36,361	39,533
Chile.....	1,597	823	870	747	1,217	1,117	1,271	1,755
Colombia.....	18,179	16,574	15,827	12,784	13,023	15,658	13,576	14,889
Ecuador.....	4,427	4,962	7,623	11,018	7,682	8,611	7,625	9,353
French Guiana.....	—	1	—	—	—	—	1	—
Paraguay.....	278	347	746	760	874	378	831	547
Peru.....	2,768	2,326	3,978	3,037	4,233	3,225	3,770	7,792
Surinam.....	3,899	2,270	2,872	4,156	3,482	4,067	6,158	6,978
Uruguay.....	808	820	657	987	1,834	793	868	968
Venezuela.....	248,069	209,538	204,582	195,189	216,640	224,275	243,495	270,621
Totals, Commonwealth and Preferential Countries.....	20,988	20,627	18,034	18,929	23,038	23,375	31,334	35,653
Totals, Other Countries.....	320,119	270,568	269,180	257,615	282,349	296,329	319,379	358,664
Totals, South America.....	341,106	291,194	287,213	276,544	305,387	319,703	350,714	394,317
Central America and Antilles—								
Bahamas.....	145	146	233	2,614	484	217	426	412
Barbados.....	7,602	3,735	4,709	2,417	4,980	3,170	3,954	3,851
Bermuda.....	116	276	1,291	701	224	136	262	190
British Honduras.....	182	136	92	91	701	629	1,720	1,858
Jamaica.....	40,133	27,491	31,012	37,688	38,511	39,721	51,524	47,831
Leeward and Windward Islands..	2,387	1,761	1,989	1,496	1,261	1,686	2,202	1,026
Trinidad and Tobago.....	8,159	9,807	12,731	14,512	14,375	14,100	15,871	20,738
Costa Rica.....	8,602	7,127	4,810	4,345	4,227	6,259	7,308	8,263
Cuba.....	13,840	18,836	12,011	7,243	5,034	2,803	13,041	3,464
Dominican Republic.....	1,268	2,659	1,634	1,586	1,209	1,912	2,281	5,093
El Salvador.....	1,311	1,186	3,899	829	1,307	1,848	1,960	3,356
French West Indies.....	—	—	7	28	426	326	278	263
Guatemala.....	3,469	3,585	2,718	3,256	2,536	1,796	2,557	2,422
Haiti.....	1,491	1,073	1,053	982	810	566	1,159	2,056
Honduras.....	4,575	4,903	2,905	3,352	7,391	7,617	6,868	7,670
Mexico.....	20,987	31,888	34,201	21,007	18,193	24,416	23,734	23,612
Netherlands Antilles.....	39,259	39,453	47,120	32,521	31,137	35,856	35,999	34,885
Nicaragua.....	555	2,657	306	170	208	107	383	727
Panama.....	7,193	7,478	8,889	6,066	6,168	8,321	11,057	15,095
Puerto Rico.....	969	1,433	1,780	2,904	2,359	2,713	2,399	3,554
United States Virgin Islands.....	1	44	32	32	1	1	1	3
Totals, Commonwealth and Preferential Countries.....	58,723	43,352	52,057	59,518	60,535	59,658	75,960	75,906
Totals, Other Countries.....	103,520	122,323	121,365	84,322	81,067	94,541	109,025	110,563
Totals, Central America and Antilles.....	162,244	165,675	173,422	143,839	141,603	154,199	184,985	186,469

¹ Less than \$500.

6.—Value of Imports, by Geographic Region and Country, 1957-64—concluded

Region and Country	1957	1958	1959	1960	1961	1962	1963 [*]	1964
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
North America—								
Greenland.....	1	8	53	1	102	111	106	110
St. Pierre and Miquelon.....	47	19	27	60	42	118	84	189
United States ²	3,887,391	3,460,147	3,709,065	3,686,625	3,863,968	4,299,539	4,444,556	5,164,383
Totals, North America.....	3,887,437	3,460,174	3,709,145	3,686,685	3,864,111	4,299,769	4,444,746	5,164,683
Grand Totals, Commonwealth and Preferential Countries..	746,373	728,521	829,814	870,099	910,377	881,563	927,620	979,792
Grand Totals, Other Countries	4,726,973	4,321,971	4,679,107	4,612,597	4,858,201	5,376,213	5,630,589	6,508,370
Grand Totals, All Countries.	5,473,346	5,059,492	5,508,921	5,482,695	5,768,578	6,257,776	6,558,209	7,488,162

¹ Less than \$500.² Includes Alaska and Hawaii.

The proportion of imports subject to duty varies widely between countries and geographic areas. Generally, the Canadian tariff imposes duties on a greater proportion of manufactured goods than of natural products. Countries supplying chiefly manufactures to Canada tend to have duties charged on a greater proportion of their goods and also to have relatively higher average ad valorem rates of duty charged on their goods than is the case with countries supplying chiefly natural products. Variations in the proportion of imports dutiable as between different countries or in the average ad valorem rates of duty charged on imports from different countries therefore do not necessarily indicate differences in the tariff relations between Canada and these countries.

7.—Values of Dutiable and Free Imports, by Geographic Region and Leading Countries, 1962-64

Region and Country	1962			1963 [*]			1964		
	Dutiable	Free	Total	Dutiable	Free	Total	Dutiable	Free	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Western Europe.....	620,692	392,119	1,012,811	576,783	429,805	1,006,588	659,717	488,921	1,139,638
Britain.....	264,132	298,930	563,062	212,766	314,033	526,800	223,478	350,495	573,973
Austria.....	7,243	729	7,971	8,071	955	9,026	8,712	884	9,595
Belgium and Luxembourg.....	36,725	11,947	48,672	34,327	13,015	47,342	45,015	14,174	59,188
Denmark.....	9,241	4,038	13,278	8,861	4,348	13,209	10,876	4,874	15,749
France.....	44,806	11,353	56,160	45,279	12,891	58,170	54,879	13,808	68,687
Germany, Federal Republic.....	120,195	21,003	141,198	118,537	25,486	144,023	135,422	34,956	170,378
Italy.....	46,227	5,632	51,859	49,494	5,809	55,303	60,976	6,486	67,462
Netherlands.....	27,336	9,713	37,049	27,268	9,468	36,736	30,417	9,516	39,933
Norway.....	5,002	11,107	16,109	5,359	18,133	23,492	6,045	21,290	27,335
Spain.....	5,149	3,314	8,463	4,035	4,460	8,496	5,375	6,328	11,704
Sweden.....	20,159	5,714	25,873	24,646	8,764	33,410	28,075	10,719	38,794
Switzerland.....	22,635	5,406	28,042	25,202	7,267	32,469	27,317	9,630	36,947
Eastern Europe.....	16,164	2,631	18,795	19,315	2,794	22,109	26,697	3,269	29,966
Czechoslovakia.....	8,419	614	9,033	8,828	376	9,204	12,019	828	12,847
Poland.....	4,389	402	4,792	6,416	372	6,788	9,117	164	9,280
Middle East.....	4,178	93,391	97,569	4,335	112,175	116,511	4,660	72,530	77,191
Qatar.....	—	6,273	6,273	—	8,678	8,678	—	2,285	2,285
Iran.....	128	31,608	31,736	153	42,646	42,799	228	30,857	31,085
Iraq.....	86	618	704	91	1,178	1,269	129	2,250	2,379
Israel.....	2,930	2,716	5,646	2,954	3,089	6,043	3,238	3,032	6,270
Kuwait.....	—	10,034 ¹	10,034 ¹	—	5,169	5,169	2	11,217	11,219
Saudi Arabia.....	—	40,551	40,551	—	50,290	50,290	2	18,552	18,553

¹ Included with "Totals, Commonwealth and Preferential Countries".² Less than \$500.

7.—Values of Dutiable and Free Imports, by Geographic Region and Leading Countries, 1962-64—concluded

Region and Country	1962			1963 ^a			1964		
	Dutiable	Free	Total	Dutiable	Free	Total	Dutiable	Free	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Other Africa	29,163	39,571	50,731	40,521	46,146	86,667	38,065	58,540	96,605
Ghana	3,020	4,017	7,036	1,959	4,574	6,532	2,283	5,678	7,961
Kenya	86	3,071	3,157	103	5,220	5,323	78	7,319	7,397
Mauritius and Dependencies	5,215	—	5,215	8,606	—	8,606	13,008	385	13,394
Nigeria	2,444	3,282	5,726	3,603	4,320	7,924	3,588	7,676	11,264
Republic of South Africa	6,632	10,320	16,952	18,054	13,494	31,548	13,707	15,068	28,774
Tanganyika	38	2,135	2,173	30	7,284	7,315	52	9,009	9,061
Other Asia	156,724	86,892	243,616	177,147	90,405	267,552	219,892	94,506	314,398
Ceylon	611	14,152	14,763	587	14,055	14,642	666	12,747	13,413
Hong Kong	18,327	563	18,899	20,006	592	21,197	25,341	980	26,321
India	16,483	26,996	43,479	25,712	26,952	52,664	9,867	26,254	36,121
Malaysia	1,507	26,233	27,740	2,450	29,004	31,454	2,824	31,742	34,566
China, Communist	1,599	2,922	4,521	2,018	3,129	5,147	5,030	4,390	9,420
Japan	114,035	11,324	125,359	117,993	12,478	130,471	160,966	13,414	174,381
Taiwan (Republic of China)	2,836	74	2,910	5,585	290	5,875	8,772	291	9,063
Oceania	39,335	21,243	60,578	49,068	29,270	78,338	45,244	39,652	84,896
Australia	30,769	14,447	45,216	33,621	22,029	55,650	33,167	26,660	59,827
Fiji	3,132	12	3,144	8,572	16	8,588	7,391	10	7,401
New Zealand	5,221	6,784	12,005	6,847	7,219	14,067	4,650	9,426	14,076
South America	68,754	250,949	319,703	85,127	265,586	350,714	100,371	293,946	394,317
British Guiana	7,637	15,738	23,375	16,431	14,904	31,334	18,136	17,516	35,653
Brazil	20,330	11,269	31,600	20,669	15,692	36,361	25,214	14,319	39,533
Colombia	11,256	4,303	15,558	10,457	3,119	13,576	13,013	1,876	14,889
Ecuador	8,424	188	8,611	7,496	128	7,625	9,273	80	9,353
Venezuela	16,347	207,928	224,275	23,019	220,477	243,495	27,552	243,070	270,621
Central America and Antilles	95,434	58,765	154,199	117,938	67,047	184,985	120,285	66,184	186,469
Jamaica	9,244	30,476	39,721	16,543	34,981	51,524	16,193	31,637	47,831
Trinidad and Tobago	5,519	8,581	14,100	6,227	9,644	15,871	9,487	11,251	20,738
Costa Rica	6,206	54	6,259	7,118	190	7,308	8,325	38	8,363
Honduras	7,488	129	7,617	6,698	170	6,868	7,435	235	7,670
Mexico	9,069	15,347	24,416	9,267	14,467	23,734	9,942	13,670	23,612
Netherlands Antilles	35,720	136	35,856	35,793	207	35,999	34,795	91	34,885
Panama	8,290	31	8,321	11,017	39	11,057	15,058	37	15,095
North America	2,458,837	1,840,932	4,299,769	2,472,351	1,972,395	4,444,746	2,828,831	2,335,852	5,164,683
United States	2,458,717	1,840,822	4,299,539	2,472,340	1,972,216	4,444,556	2,828,831	2,335,852	5,164,683
Totals, Commonwealth and Preferential Countries	389,007	492,556	881,563	397,800	529,820	927,620	396,110	583,682	979,792
Totals, Other Countries	3,091,275	2,284,933	5,376,213	3,144,786	2,485,803	5,630,589	3,638,652	2,869,718	6,508,370
Grand Totals, Imports	3,480,282	2,777,494	6,257,776	3,542,585	3,015,623	6,558,209	4,034,762	3,453,400	7,488,162

^a Includes Kuwait.

Section 4.—Trade by Commodity

This Section provides detailed information on the composition of Canada's exports and imports for 1963 and 1964. Table 8 shows exports and re-exports to and imports from all countries, Britain and the United States, classified by section; Table 9 gives detailed statistics of all commodities of any importance exported from Canada to all countries, to Britain and to the United States; and detailed statistics for imports into Canada by group and commodity appear in Table 10. An explanation of the different classification used in the latter table is given on p. 915.

8.—Exports to and Imports from All Countries, Britain and the United States, by Section, 1963 and 1964

(Millions of dollars)

Section	Domestic Exports		Re-exports		Imports	
	1963	1964	1963	1964	1963	1964
All Countries	6,798.5	8,094.4	181.6	209.2	6,558.2	7,488.2
Live animals.....	42.0	34.5	0.2	0.1	9.7	17.1
Food, feed, beverages and tobacco.....	1,419.9	1,805.9	7.7	8.4	770.5	777.6
Crude materials, inedible.....	1,426.0	1,616.1	9.8	6.3	897.3	961.1
Fabricated materials, inedible.....	3,106.9	3,502.5	43.2	56.9	1,571.0	1,813.0
End products, inedible.....	779.1	1,109.2	114.8	134.6	3,172.4	3,701.2
Special transactions—trade.....	24.7	26.2	6.0	2.9	137.4	218.1
Britain	1,006.8	1,199.8	8.1	7.3	526.8	574.0
Live animals.....	297.8	311.7	--	--	0.5	0.4
Food, feed, beverages and tobacco.....	216.3	236.4	0.3	0.5	31.6	34.8
Crude materials, inedible.....	457.5	602.6	0.4	0.6	36.4	37.3
Fabricated materials, inedible.....	34.0	48.6	1.0	1.4	168.9	180.3
End products, inedible.....	0.7	0.5	6.3	4.8	284.8	313.3
Special transactions—trade.....			0.1	--	4.7	7.8
United States	3,766.4	4,271.1	147.0	165.9	4,444.6	5,164.4
Live animals.....	38.3	80.1	0.1	--	8.9	16.4
Food, feed, beverages and tobacco.....	332.9	362.0	6.1	6.9	358.0	356.1
Crude materials, inedible.....	881.4	978.6	8.0	4.6	383.9	443.0
Fabricated materials, inedible.....	2,069.2	2,237.2	39.5	52.5	1,037.0	1,197.1
End products, inedible.....	425.4	643.0	87.6	99.4	2,533.1	2,954.8
Special transactions—trade.....	19.1	20.1	5.7	2.5	123.7	196.9

9.—Domestic Exports from Canada to All Countries, to Britain and to the United States, by Section and Commodity, 1963 and 1964

Section and Commodity	All Countries		Britain		United States	
	1963	1964	1963	1964	1963	1964
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Live Animals	41,971	34,514	46	42	38,312	30,115
Food, Feed, Beverages and Tobacco	1,419,857	1,805,886	297,762	311,721	332,872	361,969
Meat, fresh, chilled or frozen.....	27,274	36,065	2,345	3,930	23,329	27,657
Other meat and meat preparations.....	17,147	15,633	279	542	8,558	9,296
Fish, whole or dressed, fresh or frozen.....	37,502	41,501	2,782	4,164	30,858	32,102
Fish, fillets and blocks, fresh or frozen.....	43,897	52,861	1,237	2,422	42,479	50,046
Fish, preserved, except canned.....	25,588	25,528	21	81	6,165	6,212
Fish, canned.....	23,775	31,851	9,939	15,534	605	382
Shellfish.....	29,070	34,640	570	758	27,268	31,625
Dairy produce, eggs and honey.....	26,551	60,385	11,018	26,541	1,286	1,331
Barley.....	24,524	51,254	10,362	10,657	8,924	11,070
Wheat.....	786,804	1,023,112	160,798	147,428	14,528	7,828
Other cereals, unmilled.....	29,714	22,677	1,638	1,178	6,062	6,217
Wheat flour.....	62,616	100,659	22,327	21,692	1,780	1,342
Other cereals, milled.....	10,902	16,969	25	4	4,657	4,306
Cereal preparations.....	6,682	6,889	872	517	5,234	5,567
Fruits and fruit preparations.....	22,768	21,636	7,342	7,042	13,139	11,346
Vegetables and vegetable preparations.....	27,341	30,943	11,365	9,958	6,274	9,969
Sugar and sugar preparations.....	18,293	11,310	820	778	8,627	7,296
Other foods and materials for foods.....	17,727	19,698	3,739	3,123	7,167	9,085
Oil seed cake and meal.....	23,123	22,409	22,343	20,918	55	68
Other feeds of vegetable origin.....	19,007	22,082	880	1,504	16,387	17,549
Other fodder and feed.....	15,630	18,107	2,168	4,012	9,684	10,094
Whisky.....	90,125	102,820	384	305	85,365	96,876
Other beverages.....	4,255	4,493	11	9	4,127	4,371
Tobacco.....	29,541	38,365	23,998	28,627	315	332
Crude Materials, Inedible	1,425,951	1,616,145	216,316	236,357	881,401	978,636
Raw hides and skins.....	13,220	14,913	1,444	1,189	3,571	3,642
Fur skins, undressed.....	32,356	30,328	6,842	7,414	20,670	16,874
Other crude animal products.....	6,417	6,583	511	761	5,564	5,327
Seeds for sowing.....	13,586	12,768	2,678	2,738	8,704	7,391
Flaxseed.....	38,560	48,662	13,985	16,299	9	1
Rapeseed.....	16,156	10,152	164	265	37	340

9.—Domestic Exports from Canada to All Countries, to Britain and to the United States, by Section and Commodity, 1963 and 1964—continued

Section and Commodity	All Countries		Britain		United States	
	1963	1964	1963	1964	1963	1964
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Crude Materials, Inedible—concluded						
Other oil seeds, oil nuts and oil kernels...	8,889	9,484	4,998	5,761	2,095	1,461
Other crude vegetable products...	12,512	13,223	93	168	11,879	12,472
Pulpwood...	35,985	36,824	2,554	2,777	26,717	23,225
Other crude wood materials...	19,438	18,162	527	675	14,258	13,369
Textile and related fibres...	13,640	11,394	837	845	5,320	4,942
Iron ores and concentrates...	270,949	356,007	26,272	35,714	214,532	293,900
Scrap iron and steel...	13,456	20,598	—	369	6,246	8,365
Aluminum ores, concentrates and scrap...	13,001	8,679	5	287	2,569	3,043
Copper in ores, concentrates and scrap...	53,797	65,573	896	884	8,555	8,326
Lead in ores, concentrates and scrap...	7,686	15,341	1,126	1,512	4,284	5,383
Nickel in ores, concentrates and scrap...	149,236	166,036	79,110	81,396	14,917	34,524
Precious metals in ores, concentrates and scrap...	34,554	34,394	21,707	20,625	10,521	8,961
Zinc in ores, concentrates and scrap...	18,805	54,776	976	1,384	13,555	20,259
Radioactive ores and concentrates...	137,531	74,653	40,509	39,627	96,879	34,863
Other metals in ores, concentrates and scrap...	4,116	7,383	147	1,235	1,726	2,400
Crude petroleum...	233,867	262,023	—	—	233,867	262,023
Natural gas...	75,630	97,609	—	—	75,630	97,609
Coal and other crude bituminous substances...	10,823	12,836	4	1	3,304	3,460
Asbestos unmanufactured...	139,447	155,706	9,891	11,782	57,688	62,996
Sulphur...	12,910	20,404	336	406	7,983	8,833
Other crude non-metallic minerals...	27,000	36,692	284	1,812	20,625	22,926
Other waste and scrap materials...	12,381	14,934	420	433	9,694	11,717
Fabricated Materials, Inedible	3,106,898	3,502,486	457,459	602,570	2,069,229	2,237,249
Leather and leather fabricated materials	9,468	9,686	2,784	2,821	3,494	3,684
Lumber, softwood...	426,855	449,732	52,168	77,773	313,560	313,754
Lumber, hardwood...	25,629	27,614	2,564	3,069	22,358	23,512
Shingles and shakes...	30,317	31,945	259	288	29,818	31,345
Other sawmill products...	4,550	5,541	747	590	3,799	4,855
Veneer...	24,607	28,811	2	17	23,082	26,290
Plywood...	28,438	37,850	18,877	27,195	7,948	7,566
Other wood fabricated materials...	5,413	7,246	961	1,628	3,919	4,871
Wood pulp and similar pulp...	405,292	460,854	31,621	38,464	309,915	346,017
Newsprint paper...	759,990	834,646	60,213	61,791	636,086	689,406
Other paper for printing...	9,269	12,403	807	2,263	6,922	8,885
Paperboard...	19,621	20,454	16,836	15,697	1,776	2,043
Other paper...	23,395	30,322	8,573	10,937	7,284	9,159
Yarn, thread, cordage, twine and rope...	10,317	13,176	720	1,035	5,888	8,442
Broad woven fabrics...	10,586	14,207	6,444	8,512	458	803
Other textile fabricated materials...	9,494	12,160	533	1,779	534	1,788
Oils, fats, waxes, extracts and derivatives	17,423	21,544	8,959	11,982	2,613	2,270
Chemical elements...	6,669	8,005	1,462	1,858	4,050	3,913
Other inorganic chemicals...	23,730	31,269	5,147	5,901	13,737	17,311
Organic chemicals...	41,797	48,244	8,176	14,889	23,843	22,193
Fertilizers and fertilizer materials...	74,756	86,750	151	210	64,624	67,757
Synthetic rubber and plastics materials...	88,406	98,723	15,964	21,778	11,686	13,410
Plastics, basic shapes and forms...	10,447	12,996	1,638	2,312	798	1,495
Other chemical products...	12,386	9,605	1,530	723	6,203	4,465
Petroleum and coal products...	19,975	24,864	383	596	17,491	20,348
Ferro-alloys...	4,293	5,052	2,691	3,533	1,199	1,140
Primary iron and steel...	59,540	76,410	9,757	13,459	45,728	58,513
Castings and forgings, steel...	15,470	23,376	18	65	14,550	21,975
Bars and rods, steel...	12,817	14,549	1,474	1,652	8,129	9,510
Plate, sheet and strip, steel...	61,350	71,708	4,004	7,993	27,636	33,317
Rails and railway track material, steel...	17,308	21,634	—	—	796	906
Other iron and steel and alloys...	12,980	15,804	182	349	7,630	10,323
Aluminum, including alloys...	302,730	317,937	82,734	98,171	119,943	118,898
Copper and alloys...	166,517	190,363	63,629	76,119	56,216	69,564
Lead, including alloys...	15,798	22,496	6,368	9,245	6,419	7,851
Nickel and alloys...	175,368	197,145	11,873	38,835	150,399	140,868
Precious metals, including alloys...	17,783	14,914	113	40	15,375	14,694
Zinc, including alloys...	42,276	62,345	16,101	25,846	18,055	20,749
Other non-ferrous metals and alloys...	13,577	15,563	5,789	5,501	5,766	6,927
Metal fabricated basic products...	21,018	35,303	1,482	2,232	12,488	23,763

¹ Less than \$500.

9.—Domestic Exports from Canada to All Countries, to Britain and to the United States, by Section and Commodity, 1963 and 1964—concluded

Section and Commodity	All Countries		Britain		United States	
	1963	1964	1963	1964	1963	1964
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Fabricated Materials, Inedible—concl.						
Abrasive basic products.....	27,626	29,784	2,894	2,884	23,698	25,983
Other non-metallic mineral basic products	15,274	18,262	191	1,350	12,349	13,356
Electricity.....	15,958	18,003	—	—	15,958	18,003
Other fabricated materials, inedible.....	10,384	13,191	641	1,217	4,906	5,328
End Products, Inedible.....	779,135	1,109,159	31,555	48,586	425,436	642,975
General purpose industrial machinery...	29,505	37,246	950	1,511	10,098	13,006
Materials handling machinery and equipment.....	7,200	13,499	62	109	5,031	10,046
Drilling, excavating, mining machinery...	10,420	14,928	122	671	3,179	5,137
Metalworking machinery.....	7,323	8,967	355	710	4,734	6,055
Construction machinery and equipment...	6,893	6,588	511	891	3,439	3,863
Plastics industry machinery and equipment.....	7,192	8,683	219	426	6,844	8,110
Woodworking machinery and equipment	8,783	10,784	926	822	3,435	3,872
Pulp and paper industries machinery....	10,528	13,230	122	373	2,194	4,218
Other special industry machinery.....	19,243	21,705	1,928	2,274	10,437	10,846
Soil preparation, seeding, fertilizing machinery.....	23,652	24,577	25	62	22,634	23,449
Combine reaper-threshers and parts....	43,745	67,376	1,060	1,696	38,518	61,629
Other haying and harvesting machinery...	31,427	31,597	9	28	29,768	28,987
Other agricultural machinery and equipment.....	7,413	7,735	187	129	6,689	6,282
Tractors.....	8,327	9,387	407	406	7,175	7,308
Railway and street railway rolling-stock	28,520	28,880	—	—	1,841	524
Passenger automobiles and chassis.....	28,040	67,665	1,526	1,910	639	20,822
Other motor vehicles.....	9,954	14,474	85	34	3,938	5,526
Motor vehicle engines and parts.....	15,333	31,286	22	372	12,266	25,330
Motor vehicle parts, except engines.....	34,318	63,959	296	327	19,797	45,108
Ships and boats.....	16,888	20,711	609	935	12,001	9,976
Aircraft, complete with engines.....	32,640	152,134	—	—	25,940	116,893
Aircraft engines and parts.....	31,485	43,664	233	309	23,253	33,321
Aircraft parts, except engines.....	44,168	52,986	698	474	27,549	36,262
Other vehicles.....	3,701	3,405	5	1	3,591	3,273
Rubber tires and tubes.....	11,044	8,403	10	11	7,547	3,573
Communication and related equipment...	52,193	51,907	1,124	1,641	39,046	33,774
Heating and refrigeration equipment....	10,058	15,165	3,349	5,254	3,973	5,983
Cooking equipment for food.....	2,952	3,367	1,829	2,169	536	402
Electric lighting and distribution equipment.....	19,251	21,174	742	1,183	4,747	6,525
Navigation equipment and parts.....	48,820	51,221	290	222	17,419	22,111
Other measuring, controlling, laboratory, medical and optical equipment.....	15,029	21,175	994	1,549	5,726	11,148
Hand tools and miscellaneous cutlery....	6,233	7,492	587	1,147	943	1,514
Office machines and equipment.....	29,929	37,005	1,022	3,107	6,268	7,770
Other equipment and tools.....	14,578	16,150	1,681	2,620	5,838	6,155
Apparel and apparel accessories.....	14,744	20,890	2,994	4,939	3,928	6,926
Footwear.....	4,996	5,371	978	952	2,862	3,158
Toys, games, sporting, recreation equipment.....	9,115	9,875	599	1,057	6,331	5,611
Other personal and household goods.....	11,196	15,178	1,560	2,877	3,924	4,466
Medicinal and pharmaceutical products...	10,498	11,110	376	381	964	1,128
Medical, ophthalmic, orthopaedic supplies.....	1,304	2,039	114	69	543	798
Printed matter.....	7,500	10,019	729	677	5,512	7,523
Photographic goods.....	5,508	6,286	364	438	2,504	2,754
Firearms, ammunition and ordnance....	10,804	8,743	838	795	8,418	6,152
Containers and closures.....	6,884	5,510	2,387	342	2,442	2,537
Prefabricated buildings and structures...	10,160	11,295	118	287	6,044	5,170
Other end products.....	9,666	14,318	1,504	2,387	4,932	7,952
Special Transactions—Trade.....	24,714	26,171	699	503	19,130	20,116
Shipments valued at less than \$100 each.	15,760	16,274	413	464	12,583	12,798
Other special transactions—trade.....	8,955	9,897	287	40	6,548	7,318
Totals, Exports.....	6,798,529	8,094,360	1,006,838	1,199,779	3,766,380	4,271,059

¹ Less than \$500.

10.—Imports into Canada for Consumption from All Countries, from Britain and from the United States, by Group and Commodity, 1963 and 1964

NOTE.—Statistics for 1964 are compiled on the basis of a new Import Commodity Classification. Conversions from one classification to the other have been made as nearly as possible, but in some cases are only approximate.

Group and Commodity	All Countries		Britain		United States	
	1963 [*]	1964	1963 [*]	1964	1963 [*]	1964
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Agricultural and Vegetable Products	864,964	910,462	36,797	40,505	441,741	474,477
Fruits and berries, fresh or chilled.....	102,653	114,519	9	5	65,716	72,299
Other fruits and fruit preparations.....	81,973	79,503	1,282	1,266	50,859	43,838
Vegetables, fresh or chilled.....	54,481	60,105	2	3	49,576	54,113
Other vegetables and vegetable preparations.....	19,493	20,203	349	565	12,871	12,770
Cereals, unmilled.....	41,725	37,608	1	1	41,522	36,954
Cereal products and farinaceous substances.....	13,464	16,498	3,618	4,006	8,302	10,688
Sugar, raw.....	126,735	101,889			6	3
Other sugar and sugar preparations.....	21,012	23,231	5,826	7,470	5,561	6,505
Cocoa and chocolate.....	18,543	20,580	2,115	2,422	1,758	902
Coffee.....	65,287	82,620	41	75	14,609	18,865
Tea.....	25,554	26,039	4,360	4,089	662	718
Other foodstuffs, chiefly vegetable.....	43,111	47,711	1,418	1,247	23,105	25,951
Fodder and feed, except unmilled cereals	24,617	22,075	31	98	24,082	21,256
Beverages.....	26,973	32,993	10,632	12,096	1,561	2,392
Tobacco.....	7,360	10,261	379	511	4,356	6,018
Oil seeds, oil nuts and oil kernels.....	50,115	63,601	1	22	44,348	58,707
Oils, vegetable.....	33,974	33,872	3,189	2,644	17,352	20,859
Rubber, raw and partially manufactured	42,687	45,134	321	345	22,504	24,033
Rubber, manufactured.....	39,595	47,146	2,797	3,188	33,039	38,321
Other non-food products, chiefly vegetable.....	25,601	24,895	427	454	19,950	19,279
Animals and Animal Products	166,937	160,705	14,368	13,647	96,635	94,840
Fish and marine animals.....	20,147	21,753	357	333	9,509	9,709
Furs and products.....	26,338	25,535	4,549	3,363	13,918	13,346
Hides, skins and leather.....	22,249	26,263	5,829	6,612	13,554	16,230
Meat, fresh, chilled or frozen.....	47,586	33,344	741	17	28,042	19,963
Other meat and meat preparations.....	14,917	13,582	285	293	8,740	8,163
Dairy produce, eggs and honey.....	14,834	13,128	119	270	7,119	5,014
Other animals and animal products.....	20,766	27,099	2,457	2,708	15,753	22,414
Fibres, Textiles and Products	486,350	558,754	91,836	97,972	218,948	246,931
Cotton, raw and linters.....	53,347	62,344	1	5	49,039	59,567
Cotton fabrics.....	68,077	73,056	3,271	3,513	41,364	45,058
Other cotton products.....	22,138	26,083	4,426	5,297	10,409	10,963
Flax, hemp, jute and products.....	32,186	26,940	5,081	4,034	4,398	1,974
Wool and fine animal hair.....	39,994	44,944	24,360	25,206	4,461	3,848
Wool fabrics.....	33,337	40,463	22,050	22,290	2,430	4,869
Other wool products.....	12,195	15,202	7,728	7,689	1,320	928
Synthetic fibres, yarns and cordage.....	21,067	31,520	2,764	3,893	13,931	21,461
Synthetic fibre fabrics.....	46,212	53,203	1,580	2,144	32,221	35,459
Carpets, mats and other floor coverings.....	10,685	13,669	2,734	4,207	1,734	2,453
Apparel and apparel accessories.....	67,923	79,968	10,162	11,455	15,913	16,585
Other textile products.....	79,189	86,382	7,678	8,238	41,728	43,766
Wood, Wood Products and Paper	291,751	325,396	10,548	11,900	247,410	275,814
Lumber.....	31,829	37,811	15	19	28,522	33,723
Other wood, unmanufactured.....	35,169	43,729	125	106	25,124	29,221
Wood, manufactured.....	28,792	27,515	652	648	20,994	21,246
Newspapers, magazines and periodicals.....	39,054	46,289	504	904	36,572	42,871
Books, pamphlets and tourist literature.....	54,886	56,178	5,518	5,828	43,377	45,129
Other printed matter.....	25,380	30,606	1,274	1,629	22,847	26,969
Other paper and products.....	76,645	83,239	2,461	2,767	69,974	76,655
Iron and Its Products	2,385,017	2,918,994	177,415	218,128	1,987,228	2,417,842
Iron ore.....	67,873	67,287	—	—	63,454	63,448
Scrap iron and steel.....	18,442	27,438	26	—	18,380	27,319

¹ Less than \$500.

19.—Imports into Canada for Consumption from All Countries, from Britain and from the United States, by Group and Commodity, 1963 and 1964—continued

Group and Commodity	All Countries		Britain		United States	
	1963*	1964	1963*	1964	1963*	1964
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Iron and Its Products—concluded						
Ferro-alloys, pigs, ingots, blooms and billets.....	12,193	12,405	519	178	5,200	6,327
Bars and rods, steel.....	25,764	41,969	2,391	2,742	5,672	10,923
Plate, sheet and strip, steel.....	80,761	121,587	8,081	13,370	61,151	95,332
Other rolling-mill products, steel.....	30,185	50,131	4,370	4,436	15,523	27,596
Pipes, tubes and fittings, iron and steel..	50,671	57,185	8,021	8,176	31,784	32,757
Wire and wire products.....	21,951	25,701	6,964	7,487	7,826	8,834
Engines, except aircraft engines.....	143,781	192,998	11,484	16,970	125,440	168,042
Farm equipment and parts, except tractors.....	140,244	152,290	2,105	1,718	132,457	144,852
Tractors and parts, except engines.....	183,732	220,342	16,989	11,789	162,904	203,867
Hardware and cutlery.....	37,629	48,552	4,768	5,871	25,342	33,492
Household machinery.....	26,882	31,257	1,633	3,331	21,464	23,196
Mining and metallurgical machinery.....	38,416	51,380	2,330	1,320	34,382	48,370
Business and printing machinery.....	105,294	122,334	9,073	7,289	82,056	96,576
Metalworking machinery.....	57,868	98,298	7,413	12,291	42,890	75,237
Other non-farm machinery.....	446,619	570,837	34,536	40,899	387,269	492,807
Tools.....	65,509	67,062	6,483	6,540	51,668	52,237
Automobiles, freight and passenger.....	116,649	163,776	22,967	46,129	49,373	67,193
Automobile parts, except engines.....	489,057	555,456	8,190	7,582	476,170	543,333
Other vehicles, chiefly of iron.....	27,939	39,587	4,538	5,291	21,174	28,079
Cooking and heating apparatus.....	28,425	28,488	673	508	27,217	27,439
Firearms and ammunition.....	12,460	14,879	2,097	2,057	7,197	9,593
Other iron and steel products.....	156,674	157,754	11,765	12,154	131,235	130,954
Non-ferrous Metals and Products.....	603,929	645,309	75,099	67,471	378,449	409,112
Aluminum ores, concentrates and scrap.....	67,149	70,424	3	25	11,323	15,218
Other aluminum and products.....	44,729	47,349	6,227	4,080	36,630	41,250
Brass and copper and products.....	34,147	26,889	5,102	1,056	25,630	24,267
Nickel and alloys.....	21,832	24,181	141	189	5,504	6,470
Precious metals and products, except gold	31,523	32,632	14,134	17,887	15,410	13,197
Tin and products.....	11,725	17,650	1,518	1,306	775	1,775
Zinc, including alloys.....	4,941	2,481	159	128	4,431	1,985
Watches and clocks.....	13,506	16,297	2,271	2,775	2,475	4,343
Electric generators and motors.....	37,065	34,787	14,882	10,937	20,639	23,015
Electronic tubes and semi-conductors....	24,136	28,458	2,046	1,787	18,788	22,989
Other electrical apparatus.....	250,290	272,000	21,510	21,063	198,425	214,845
Plumbing equipment and fittings.....	7,570	11,975	524	498	5,897	10,042
Other non-ferrous metals and products....	55,314	60,185	6,582	5,740	32,522	29,715
Non-metallic Minerals and Products....	755,751	787,797	30,305	32,875	280,309	307,151
Asbestos and asbestos-cement basic products.....	5,287	6,095	1,080	1,428	3,743	4,160
Clay and products.....	50,020	54,031	15,060	16,566	28,054	29,783
Coal.....	78,632	86,241	403	113	78,228	86,128
Coal products.....	16,358	23,456	2,194	1,781	14,161	20,797
Glass and glassware.....	77,086	88,957	6,610	7,374	49,293	54,879
Petroleum, crude.....	334,761	320,637	—	—	40	—
Fuel oil, except kerosene.....	65,282	76,497	—	1,066	8,757	12,571
Other petroleum products.....	44,789	39,670	567	376	35,261	28,852
Stone and products.....	45,263	47,833	1,658	1,533	37,709	40,642
Other non-metallic minerals and products	38,172	44,381	2,737	2,638	25,062	29,338
Chemicals and Allied Products.....	410,326	454,413	32,485	34,971	336,065	367,040
Acids.....	9,770	9,320	1,302	1,209	5,875	5,811
Drugs, medicines, agricultural chemicals	40,194	40,633	5,951	5,228	27,974	26,041
Fertilizers and fertilizer materials.....	13,109	16,113	27	45	11,062	14,246
Toiletries, cleaners, household chemicals	11,619	12,948	641	838	9,785	10,500
Inorganic chemicals, <i>n.o.p.</i>	30,457	37,507	3,977	4,239	24,020	29,874
Plastic materials, not shaped.....	54,176	61,585	1,180	2,169	49,083	55,011
Plastic film and sheet.....	24,297	27,671	1,412	2,661	20,878	22,766
Other plastics, basic shapes and forms....	12,510	17,430	521	633	11,449	15,931
Plastics manufactures, <i>n.o.p.</i>	30,660	26,420	573	609	27,625	21,194
Dyestuffs, except dyeing extracts.....	15,013	15,942	1,695	1,890	7,754	7,829
Pigments, lakes and toners.....	11,501	12,112	760	761	9,831	10,593
Paints and related products.....	8,195	9,164	452	482	7,638	8,540
Other chemicals and allied products.....	148,825	167,569	14,194	14,208	123,077	138,706

10.—Imports into Canada for Consumption from All Countries, from Britain and from the United States, by Group and Commodity, 1963 and 1964—concluded

Group and Commodity	All Countries		Britain		United States	
	1963*	1964	1963*	1964	1963*	1964
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Miscellaneous Commodities	593,192	726,333	57,743	56,504	457,771	571,177
Films.....	20,313	20,575	3,417	2,976	12,838	13,738
Toys and sporting goods.....	21,508	34,509	3,108	3,706	9,642	17,687
Footwear.....	20,240	24,824	3,667	4,535	1,815	1,989
Refrigerators.....	22,174	34,609	3,313	4,622	17,751	28,743
Other household and personal equipment	24,218	24,695	1,702	1,139	13,720	14,335
Musical instruments, phonographs, re-						
cords.....	19,091	20,237	4,945	3,477	9,976	11,182
Scientific and educational equipment....	83,218	100,029	3,700	3,701	67,763	80,690
Aircraft, complete with engines.....	22,123	18,327	760	20	21,283	17,872
Aircraft engines and parts.....	47,766	50,252	18,290	13,535	29,439	36,702
Aircraft parts.....	90,060	86,069	5,558	5,265	84,255	80,361
Ships, boats and parts, except engines....	6,503	4,549	752	243	4,221	2,814
Other vehicles.....	8,275	10,824	102	278	8,037	10,497
Canadian goods returned.....	38,457	46,938	1,694	1,986	33,033	40,292
Shipments under \$100 in value.....	92,902	194,263	2,592	5,498	87,729	152,642
Other miscellaneous commodities.....	76,333	85,633	4,131	5,522	56,239	61,633
Totals, Imports	6,558,209	7,488,162	526,800	573,973	4,444,556	5,164,383

Section 5.—Trade by Section and by Stage of Fabrication

For many years the Year Book published a tabulation of exports and imports by degree of manufacture. However, with the introduction of the new export commodity classification in January 1961 and the new import commodity classification in January 1964, these tables were discontinued until new series could be produced, based on the concepts embodied in the Standard Commodity Classification from which the new commodity classifications are derived. (See p. 915.)

The Section totals for the new commodity classifications, presented here for the first time for the period from 1946, were obtained by converting statistics compiled on the old classification to the new framework. The conversion indexes are based on two test months (August 1959 and April 1960 for exports, and February 1961 and August 1963 for imports), supplemented by the results of various studies covering the 1946-64 period. The totals of the Sections (shown in Tables 11 and 12) are arrived at by converting old classes or fragments of large "basket" classes to appropriate new classes; changes in content, description or codes of former classes were taken into account as much as possible, but the results for 1957 and previous years are subject to some limitations.

To classify exports and imports by Stage of Fabrication, that is, within the categories of Crude Materials, Fabricated Materials and End Products, requires a secondary classification of the commodities in certain Sections. Live Animals (Sect. I), being a natural product, is considered as crude materials; Food, Feed, Beverages and Tobacco (Sect. II) is allocated as follows: Crude Materials includes natural products not further processed than cleaned or prepared for shipment; Fabricated Materials includes commodities which are further processed and are used in processing industries rather than for direct human consumption, and also all commercial stock feeds; End Products includes commodities which are further processed and are mainly used directly for human consumption, and also prepared pet feeds. Sects. III, IV and V are clearly defined in the Standard Commodity Classification. Sect. VI contains relatively few classes; these have been pro-rated as necessary for both exports and imports according to studies undertaken over a number of years.

11.—Domestic Exports by Section and Stage of Fabrication, 1946-64

Year	Sect. I Live Animals	Sect. II Food, Feed, Beverages and Tobacco				Sect. III Crude Materials, Inedible	Sect. IV Fabricated Materials, Inedible	Sect. V End Products, Inedible
		Crude Materials	Fabricated Materials	End Products	Total			
ALL COUNTRIES								
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1946.....	23,353	404,491	174,075	238,628	817,194	184,435	895,617	341,615
1947.....	20,083	431,802	240,076	214,329	886,207	221,976	1,239,004	375,028
1948.....	87,877	462,291	179,126	198,483	839,901	308,821	1,391,274	414,708
1949.....	68,903	624,451	135,622	150,567	910,640	310,326	1,309,755	366,917
1950.....	84,592	510,900	134,700	169,703	815,302	332,917	1,594,641	264,926
1951.....	65,304	724,844	167,782	160,012	1,052,638	430,885	1,972,438	357,615
1952.....	5,974	989,900	181,091	147,820	1,318,812	467,143	2,033,701	439,048
1953.....	17,884	913,797	157,674	171,432	1,242,903	476,429	1,949,365	396,694
1954.....	19,407	630,031	149,058	183,582	962,672	502,040	2,030,945	331,972
1955.....	15,645	560,297	152,112	173,088	885,498	685,912	2,363,743	290,384
1956.....	13,401	750,432	152,507	180,528	1,083,467	872,967	2,441,679	325,609
1957.....	53,999	603,474	141,317	166,661	911,453	1,025,398	2,406,062	369,271
1958.....	101,534	699,896	140,901	191,450	1,032,250	963,137	2,246,818	434,500
1959.....	55,790	660,221	159,836	199,584	1,019,691	1,089,994	2,461,089	386,658
1960.....	41,038	614,277	141,402	191,283	946,962	1,114,543	2,729,389	409,683
1961.....	66,901	865,451	138,688	193,664	1,197,803	1,195,442	2,777,345	505,591
1962.....	68,054	808,022	151,225	212,888	1,172,135	1,361,595	2,907,126	654,763
1963.....	41,971	1,012,475	157,532	249,850	1,419,857	1,425,951	3,106,898	779,138
1964.....	34,514	1,298,519	210,942	296,426	1,805,886	1,616,145	3,502,486	1,109,159
BRITAIN								
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1946.....	466	202,389	69,258	107,607	379,253	39,039	147,040	28,300
1947.....	217	268,610	90,241	91,585	450,437	40,832	234,564	20,548
1948.....	226	234,056	76,524	83,279	393,859	46,178	228,256	14,670
1949.....	26	303,724	52,100	47,314	403,138	57,664	212,312	28,846
1950.....	7	185,672	43,858	45,189	274,719	47,211	140,023	5,850
1951.....	3	183,278	44,868	18,677	246,823	81,918	292,464	8,815
1952.....	12	241,238	39,428	2,327	282,993	95,694	356,227	9,424
1953.....	20	258,931	42,691	10,254	311,876	85,297	254,121	11,448
1954.....	18	184,747	36,323	14,045	235,115	86,914	324,446	4,476
1955.....	11	221,747	37,284	10,320	269,451	103,439	389,774	4,931
1956.....	22	232,322	46,878	13,734	292,934	130,636	380,952	6,558
1957.....	35	169,320	40,515	10,499	220,344	138,124	354,896	7,417
1958.....	275	218,328	33,790	29,672	281,790	139,653	330,172	19,611
1959.....	255	209,622	45,016	32,788	287,425	152,578	326,776	18,656
1960.....	210	195,553	42,975	19,718	258,246	178,936	460,357	17,338
1961.....	184	179,658	39,273	19,312	238,240	204,539	440,073	26,069
1962.....	105	191,434	51,235	27,612	270,282	172,050	435,774	30,624
1963.....	46	213,133	52,432	32,198	297,762	216,316	457,459	34,555
1964.....	42	207,202	54,186	50,334	311,721	236,357	602,570	48,586
UNITED STATES								
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1946.....	17,646	83,139	16,587	51,422	151,148	119,903	547,073	41,413
1947.....	18,184	54,436	9,004	35,174	98,615	148,067	706,775	53,553
1948.....	85,156	137,550	15,876	47,995	201,420	208,311	901,061	96,541
1949.....	68,009	164,279	20,292	57,023	241,594	189,311	898,347	101,020
1950.....	83,888	185,424	26,034	75,437	286,896	222,462	1,311,568	105,726
1951.....	64,724	264,519	39,421	93,487	397,428	271,931	1,404,542	142,185
1952.....	5,554	246,428	46,125	99,481	392,034	277,607	1,426,767	187,297
1953.....	17,197	234,968	29,193	119,723	383,884	286,796	1,512,748	201,236
1954.....	18,510	176,121	29,482	120,485	326,087	296,559	1,471,992	184,101
1955.....	14,129	127,089	29,419	117,162	273,670	425,238	1,678,919	143,481
1956.....	11,020	154,550	31,843	125,437	311,829	556,047	1,755,733	151,984
1957.....	52,696	155,763	33,425	117,007	306,195	655,206	1,660,071	156,894
1958.....	99,919	161,693	31,935	124,204	317,832	652,435	1,554,720	178,454
1959.....	54,500	129,419	32,957	127,901	290,277	730,629	1,768,038	225,211
1960.....	39,121	125,188	32,860	129,923	287,971	676,879	1,698,231	220,700
1961.....	61,050	130,025	33,794	134,302	298,121	694,914	1,760,533	283,707
1962.....	64,422	121,930	42,366	141,485	305,780	884,041	1,968,046	375,905
1963.....	38,312	137,654	40,756	154,462	332,872	881,401	2,069,229	425,436
1964.....	30,115	144,645	49,163	168,161	361,969	978,636	2,237,249	642,975

11.—Domestic Exports by Section and Stage of Fabrication, 1946-64

Sect. VI Special Transactions—Trade				Total Domestic Exports	Recapitulation Stage of Fabrication			Year
Crude Materials	Fabricated Materials	End Products	Total		Crude Materials	Fabricated Materials	End Products	
ALL COUNTRIES								
\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	
238	2,700	325	3,263	2,265,476	612,517	1,072,392	580,568	.....1946
300	5,472	361	6,133	2,748,431	674,161	1,484,552	589,718	.....1947
304	3,251	333	3,888	3,046,469	859,293	1,573,651	613,524	.....1948
141	2,120	118	2,409	2,968,948	1,003,821	1,447,497	517,632	.....1949
48	1,890	50	1,988	3,094,365	928,457	1,731,231	434,679	.....1950
36	3,200	37	3,273	3,882,153	1,221,069	2,143,420	517,664	.....1951
32	4,699	33	4,763	4,269,441	1,462,049	2,219,491	586,901	.....1952
25	2,863	26	2,914	4,086,190	1,408,135	2,109,902	568,152	.....1953
25	2,194	26	2,246	3,849,281	1,151,503	2,182,197	515,580	.....1954
27	3,621	1,799	5,447	4,246,630	1,261,881	2,519,476	465,271	.....1955
32	3,742	4,730	8,504	4,745,626	1,636,832	2,597,928	510,867	.....1956
1,850	3,225	7,540	12,616	4,778,799	1,684,721	2,550,604	543,472	.....1957
1,858	3,076	8,263	13,197	4,791,436	1,766,425	2,390,798	634,213	.....1958
1,981	2,832	6,638	11,450	5,021,672	1,804,986	2,623,807	592,880	.....1959
1,927	3,471	8,552	13,960	5,255,575	1,771,795	2,874,262	609,518	.....1960
4,337	403	7,164	11,903	5,754,986	2,132,131	2,916,436	706,419	.....1961
3,991	340	10,518	14,849	6,178,523	2,241,662	3,058,691	878,169	.....1962
9,771	748	14,196	24,714	6,798,529	2,490,168	3,265,178	1,043,184	.....1963
10,090	716	15,365	26,171	8,094,360	2,959,268	3,714,144	1,420,950	.....1964
BRITAIN								
\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	
4	33	4	41	594,138	241,898	216,331	135,911	.....1946
8	103	9	120	746,718	309,667	324,908	112,142	.....1947
—	61	—	61	683,249	280,460	304,841	97,949	.....1948
—	88	—	88	702,074	361,414	264,500	76,160	.....1949
—	85	—	85	467,896	232,890	183,966	51,039	.....1950
—	100	—	100	630,124	265,199	337,432	27,492	.....1951
—	110	—	110	744,461	236,944	395,765	11,751	.....1952
—	22	—	22	662,785	344,248	296,834	21,702	.....1953
—	63	—	63	651,033	271,679	360,832	18,521	.....1954
—	34	—	34	767,642	325,197	427,192	15,251	.....1955
—	11	—	11	811,113	362,980	427,841	20,292	.....1956
28	25	29	82	720,898	307,517	395,436	17,945	.....1957
26	22	27	75	771,576	358,282	363,984	49,310	.....1958
33	44	34	111	785,802	362,488	371,836	51,478	.....1959
42	80	81	203	915,290	374,741	503,412	37,137	.....1960
97	7	135	240	909,344	384,476	479,353	45,516	.....1961
101	7	97	205	909,041	363,690	487,016	58,333	.....1962
256	17	426	699	1,006,838	429,751	509,908	67,179	.....1963
287	28	188	502	1,199,779	443,888	656,784	99,108	.....1964
UNITED STATES								
\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	
49	259	76	384	877,568	220,737	563,919	92,911	.....1946
69	359	111	539	1,025,732	220,756	716,138	88,838	.....1947
15	401	23	439	1,492,929	421,032	917,338	144,559	.....1948
36	390	38	464	1,498,745	421,635	919,029	158,081	.....1949
21	471	22	514	2,011,052	491,795	1,338,073	181,185	.....1950
11	473	12	496	2,281,306	601,185	1,444,436	235,684	.....1951
11	472	12	495	2,289,753	529,600	1,473,364	286,790	.....1952
10	514	11	535	2,402,397	538,971	1,542,455	320,970	.....1953
8	469	8	486	2,297,734	491,198	1,501,943	304,594	.....1954
10	481	10	500	2,535,938	566,466	1,708,819	260,653	.....1955
10	649	999	1,657	2,788,270	721,627	1,788,225	278,420	.....1956
1,482	906	3,115	5,503	2,836,565	865,147	1,694,402	277,016	.....1957
1,508	922	2,278	4,708	2,808,067	915,555	1,587,577	304,936	.....1958
1,617	1,094	1,781	4,495	2,083,151	916,165	1,802,089	354,896	.....1959
1,530	1,097	6,643	9,270	2,932,171	842,718	1,732,188	357,266	.....1960
3,519	97	5,225	8,841	3,107,176	889,518	1,794,424	423,234	.....1961
3,155	277	6,812	10,243	3,608,439	1,073,548	2,010,689	524,202	.....1962
7,801	571	10,758	19,130	3,766,380	1,065,168	2,110,556	590,656	.....1963
7,935	550	11,631	20,116	4,271,059	1,161,331	2,286,962	822,767	.....1964

12.—Imports by Section and Stage of Fabrication, 1946-64

Year	Sect. I Live Animals	Sect. II Food, Feed, Beverages and Tobacco				Sect. III Crude Materials, Inedible	Sect. IV Fabricated Materials, Inedible	Sect. V End Products, Inedible
		Crude Materials	Fabricated Materials	End Products	Total			
	ALL COUNTRIES							
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1946.....	3,058	154,846	64,948	39,961	259,755	410,417	499,194	642,651
1947.....	3,431	151,162	85,622	49,590	286,374	532,347	726,893	953,659
1948.....	3,399	136,009	91,012	51,660	278,681	685,117	741,106	879,520
1949.....	2,997	153,949	97,236	61,289	312,474	613,114	750,186	1,008,899
1950.....	2,807	200,920	114,570	66,513	382,003	744,771	825,408	1,146,341
1951.....	3,222	217,119	115,900	90,005	423,025	904,510	1,108,837	1,515,096
1952.....	3,593	215,351	98,051	90,071	403,474	711,674	1,036,545	1,690,063
1953.....	3,664	220,239	89,980	94,641	404,860	665,652	1,110,339	2,005,835
1954.....	3,800	253,481	99,736	100,289	453,507	600,823	1,012,813	1,818,972
1955.....	4,689	249,956	104,932	108,567	463,454	699,291	1,187,775	2,150,115
1956.....	5,375	279,318	114,798	129,540	523,656	825,787	1,528,130	2,590,053
1957.....	5,341	271,622	136,983	147,975	556,579	830,162	1,505,796	2,501,191
1958.....	5,955	280,732	123,986	156,004	560,712	690,140	1,313,053	2,402,125
1959.....	13,175	279,835	129,516	154,512	563,863	728,238	1,392,791	2,731,352
1960.....	7,426	298,651	120,476	155,519	574,647	744,993	1,343,775	2,718,262
1961.....	7,025	327,268	129,473	164,785	621,526	763,536	1,295,779	2,879,561
1962.....	7,561	355,310	143,314	158,139	656,763	826,523	1,487,419	3,152,226
1963.....	9,673	377,592	218,595	174,291	770,477	897,296	1,570,293	3,173,449
1964.....	17,124	395,525	187,316	194,782	777,622	961,089	1,812,988	3,701,205
	BRITAIN							
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1946.....	166	12	45	5,012	5,069	10,822	74,618	45,744
1947.....	224	415	693	6,449	7,557	13,663	84,315	75,430
1948.....	265	357	1,768	10,756	12,881	30,351	134,579	106,160
1949.....	222	394	2,687	15,566	18,647	27,081	122,165	131,474
1950.....	260	1,901	4,834	15,400	22,135	40,607	143,958	191,162
1951.....	327	808	2,370	16,215	19,393	53,681	165,956	172,332
1952.....	218	1,116	4,014	16,511	21,641	24,006	131,690	168,694
1953.....	479	3,290	3,511	17,512	24,313	31,001	161,286	223,956
1954.....	286	4,780	3,632	17,081	25,493	23,518	141,962	185,898
1955.....	260	2,736	4,860	17,760	25,356	29,351	146,740	187,327
1956.....	360	2,548	5,260	17,871	25,679	28,750	196,514	219,421
1957.....	584	3,037	5,988	19,775	28,800	28,078	197,403	246,574
1958.....	470	3,897	6,765	20,074	30,736	24,040	169,043	288,543
1959.....	455	5,630	7,590	20,259	33,479	25,640	177,662	345,261
1960.....	198	4,283	8,338	20,226	32,848	25,236	167,531	357,012
1961.....	142	4,648	8,117	20,975	33,740	28,139	160,503	388,233
1962.....	516	4,138	7,441	20,316	31,894	31,428	176,785	316,929
1963.....	474	5,327	6,667	19,600	31,595	36,401	168,881	284,857
1964.....	432	4,425	3,161	27,230	34,817	37,304	180,335	313,323
	UNITED STATES							
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1946.....	2,884	85,993	20,889	15,874	122,756	283,203	377,729	576,532
1947.....	3,178	83,596	25,828	25,747	135,170	371,694	554,679	851,470
1948.....	3,092	51,289	12,931	10,565	74,784	425,719	526,855	749,065
1949.....	2,757	63,425	17,895	21,098	102,416	383,150	560,106	845,094
1950.....	2,020	83,983	18,224	21,895	124,102	457,172	574,219	912,237
1951.....	2,859	100,452	23,113	33,113	156,677	487,395	773,655	1,287,352
1952.....	3,320	103,320	20,873	40,408	164,601	406,743	787,222	1,462,473
1953.....	3,124	99,745	23,322	47,026	170,093	358,721	829,921	1,703,389
1954.....	3,485	118,581	28,343	50,393	197,317	309,877	747,534	1,544,438
1955.....	4,325	122,434	29,572	55,031	207,038	339,248	874,934	1,851,874
1956.....	4,772	144,140	37,136	75,234	251,510	401,715	1,096,282	2,214,930
1957.....	4,422	139,380	36,087	81,133	256,600	397,193	1,095,931	2,071,619
1958.....	5,190	142,044	34,458	86,233	262,735	291,053	942,761	1,893,424
1959.....	12,300	147,892	41,304	83,876	273,072	300,646	955,179	2,103,953
1960.....	6,838	163,038	41,111	85,307	289,456	325,818	922,257	2,066,485
1961.....	6,493	187,383	45,536	87,214	320,133	335,902	943,086	2,178,165
1962.....	6,689	208,465	52,730	79,858	341,053	360,125	980,713	2,499,281
1963.....	8,888	218,332	53,972	85,653	357,958	383,907	1,036,299	2,534,050
1964.....	16,365	217,086	53,976	85,065	356,127	443,025	1,197,123	2,954,838

12.—Imports by Section and Stage of Fabrication, 1946-64

Sect. VI Special Transactions—Trade				Total Imports	Recapitulation Stage of Fabrication			Year
Crude Materials	Fabricated Materials	End Products	Total		Crude Materials	Fabricated Materials	End Products	
ALL COUNTRIES								
\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	
2,604	6,182	14,494	23,280	1,838,356	570,925	570,324	697,106	.....1946
4,100	9,661	24,501	38,262	2,540,966	691,040	822,176	1,027,750	.....1947
2,429	6,561	21,445	30,436	2,618,258	826,954	838,679	952,625	.....1948
2,449	8,329	15,577	26,354	2,714,025	772,509	855,751	1,085,765	.....1949
2,198	8,617	13,528	24,343	3,125,172	950,196	948,595	1,226,382	.....1950
3,826	13,661	32,763	50,249	4,004,939	1,128,677	1,238,398	1,637,864	.....1951
4,988	16,505	49,576	71,069	3,916,418	935,606	1,151,101	1,829,710	.....1952
5,039	17,457	34,962	57,458	4,247,808	894,594	1,217,776	2,135,438	.....1953
6,397	19,776	51,313	77,486	3,967,401	864,501	1,132,325	1,970,574	.....1954
6,670	19,231	36,529	62,431	4,567,754	960,606	1,311,938	2,295,211	.....1955
7,533	26,668	39,750	73,951	5,546,952	1,118,013	1,669,596	2,759,343	.....1956
7,704	26,467	40,106	74,277	5,473,346	1,114,829	1,669,246	2,689,272	.....1957
8,348	26,864	43,297	78,508	5,050,492	985,165	1,463,903	2,601,426	.....1958
8,196	28,862	42,444	79,501	5,508,921	1,029,444	1,551,169	2,928,308	.....1959
10,322	30,326	52,945	93,593	5,482,695	1,061,392	1,494,577	2,926,726	.....1960
11,430	31,490	58,231	101,152	5,768,578	1,109,259	1,556,742	3,102,577	.....1961
15,727	31,025	80,531	127,284	6,257,776	1,205,121	1,661,758	3,390,896	.....1962
17,301	31,195	88,525	137,021	6,558,209	1,301,862	1,820,083	3,436,265	.....1963
27,222	50,816	140,097	218,135	7,488,162	1,400,960	2,051,120	4,036,084	.....1964
BRITAIN								
\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	
5	529	467	1,001	137,420	11,005	75,192	51,223	.....1946
142	931	1,933	3,006	184,205	14,454	85,939	83,812	.....1947
141	1,498	7,659	9,298	293,533	31,114	137,845	124,575	.....1948
90	1,658	1,083	2,831	302,420	27,787	126,510	148,123	.....1949
72	2,055	544	2,671	400,793	42,840	150,847	207,106	.....1950
87	2,704	715	3,506	415,194	54,903	171,030	189,262	.....1951
106	2,723	2,467	5,296	351,576	25,476	138,427	187,672	.....1952
162	3,129	1,115	4,406	445,441	34,932	167,926	242,583	.....1953
254	2,845	1,973	5,073	382,229	28,838	148,439	204,952	.....1954
173	2,881	1,031	4,084	393,117	32,520	154,481	206,118	.....1955
203	4,359	1,085	5,647	476,371	31,861	206,133	238,377	.....1956
219	4,519	1,142	5,879	507,319	31,918	207,910	267,491	.....1957
247	4,146	1,279	5,673	518,505	28,654	179,954	309,896	.....1958
267	4,443	1,362	6,077	588,573	21,992	189,700	366,882	.....1959
295	4,316	1,497	6,107	588,932	30,012	180,185	378,735	.....1960
489	4,506	2,470	7,464	618,221	33,418	173,126	411,678	.....1961
603	1,834	3,073	5,510	563,062	36,685	186,060	340,318	.....1962
582	1,054	2,955	4,591	526,800	42,784	176,602	307,412	.....1963
978	1,772	5,013	7,762	573,973	43,139	185,268	345,566	.....1964
UNITED STATES								
\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	
2,564	5,067	13,748	21,380	1,384,485	374,644	403,685	606,154	.....1946
3,818	8,034	21,872	33,723	1,949,914	462,286	588,541	899,089	.....1947
2,063	4,277	12,636	18,975	1,798,490	482,163	544,063	772,266	.....1948
2,236	5,582	13,885	21,704	1,915,227	451,568	583,583	880,075	.....1949
2,030	5,270	12,482	19,782	2,089,531	545,205	597,713	946,614	.....1950
3,650	8,904	31,594	44,149	2,752,087	594,356	805,672	1,352,059	.....1951
4,780	11,858	46,595	63,233	2,887,593	518,163	819,953	1,549,476	.....1952
4,780	11,904	33,272	49,956	3,115,205	466,370	865,147	1,783,687	.....1953
5,938	14,406	48,283	68,628	2,871,279	437,881	790,283	1,643,114	.....1954
6,276	13,081	34,367	53,725	3,331,143	472,283	917,587	1,941,272	.....1955
7,133	17,444	37,608	62,185	4,031,395	557,760	1,150,862	2,322,772	.....1956
7,256	16,579	37,791	61,626	3,887,391	548,251	1,148,597	2,190,543	.....1957
7,790	16,313	40,433	64,535	3,460,147	446,527	993,532	2,020,090	.....1958
7,576	17,043	39,296	63,915	3,709,065	468,414	1,013,526	2,227,125	.....1959
9,410	18,000	48,361	75,771	3,686,625	505,104	981,368	2,200,153	.....1960
10,178	18,048	51,963	80,189	3,863,968	539,956	1,006,670	2,317,342	.....1961
14,217	24,540	72,922	111,678	4,299,539	589,496	1,057,983	2,652,061	.....1962
15,813	26,606	81,035	123,454	4,444,556	626,940	1,116,877	2,700,738	.....1963
24,764	44,549	127,593	196,905	5,164,383	701,240	1,295,648	3,167,496	.....1964

Exports.—An analysis of the figures for 1948-64 shows that the export totals over that period followed an almost constantly upward annual trend, advancing 2.7 times; the most pronounced gains were made in 1958-64. Every Section except Live Animals recorded increases, ranging from 2.2 times for Food, Feed, Beverages and Tobacco, 2.5 times for Fabricated Materials, Inedible, 2.7 times for End Products, Inedible, to 5.2 times for Crude Materials, Inedible. During the period, Live Animals accounted for only a small proportion of the total exports, averaging slightly higher than 1.0 p.c.; Food, Feed, Beverages and Tobacco accounted for a declining proportion, ranging from 36.1 p.c. in 1946 to 18.0 p.c. in 1960; Crude Materials, Inedible recorded an increasing proportion, rising from 8.1 p.c. in 1946 to 22.0 p.c. in 1962; Fabricated Materials, Inedible accounted for the greatest proportion of the exports, averaging about 48 p.c. over the period; End Products, Inedible in the four latest years recovered the relative importance it had in 1946-49, when the over-all export totals were less than half the totals of the latest three years; Special Transactions—Trade maintained approximately the same small relative importance of 0.2 p.c.

Analysis of exports by Stage of Fabrication shows that Crude Materials in 1964 accounted for 36.6 p.c. of total exports, having increased 3.4 times since 1948 with larger advances in 1960-64. Fabricated Materials increased 2.4 times since 1948 and accounted for a decreased proportion of about 48 p.c. in the four latest years; End Products, although lower during a good portion of the 1948-64 period, increased substantially in the four latest years to a figure more than double the 1948 total.

Imports.—Total imports also showed a generally increasing trend, advancing 2.9 times during the period 1948-64, but the aggregate gains since 1960 were less than those shown by exports. Live Animals, which accounted for only about 0.1 p.c. of total imports, increased 5.0 times in value; Food, Feed, Beverages and Tobacco, which accounted for about 10 p.c. of the total, increased 2.8 times; Crude Materials, Inedible showed a consistently decreasing relative importance from a peak of 26.2 p.c. in 1948 to 12.9 p.c. in 1964 but increased 1.4 times during the period; Fabricated Materials, Inedible, which also decreased in importance from 28.3 p.c. to 24.2 p.c., increased 2.4 times; End Products, Inedible, the proportion for which fluctuated around 48 p.c. over the past ten years, increased 4.2 times; and Special Transactions—Trade, maintaining a 2.0-p.c. proportion of the total, rose 7.2 times over the period.

In the Stage of Fabrication analysis, Crude Materials, while increasing 1.7 times in the 1948-64 period, accounted for a relatively decreasing proportion of total imports, dropping from a peak of 30.4 in 1950 to an average of about 20 p.c. in 1954-64; Fabricated Materials increased 2.4 times in 1948-64, with marked advances in the 1954-64 period, but contributed a slightly diminishing proportion of some 28 p.c. in the period; End Products advanced 4.2 times the 1948 value with pronounced increases in the 1954-64 period and accounted for 54.2 p.c. of the total in 1962 compared with 36.4 p.c. in 1948, but averaging about 52.0 p.c. over the period 1954-64.

PART III.—THE GOVERNMENT AND FOREIGN TRADE

Section 1.—Federal Foreign Trade Services*

Foreign trade contributes substantially to the welfare and prosperity of Canadians, largely because the productive capacity of Canada is greater than the ability of its population to consume the output of farms, factories, forests, fisheries and mines. Every effort

* Prepared in the several branches and agencies concerned, and collated in the Trade Publicity Branch, Department of Trade and Commerce, Ottawa.

is made, therefore, to establish and maintain close commercial relations with other countries whose markets are essential to the Canadian economy. It is appreciated, however, that two-way trade should be encouraged so that goods and services may be accepted in partial payment for the products Canada is in a position to export. Furthermore, many commodities not indigenous to this country must be imported. Some of these are required for industrial processes and others may be classed as consumer goods necessary for the maintenance of the Canadian standard of living.

Although numerous private firms have established connections in other countries that enable them to maintain a steady flow of goods in either direction, others require the assistance of government agencies in finding markets or sources of supply. Import and export controls imposed by many countries for a variety of reasons, together with foreign exchange difficulties, present problems that no single firm or even an association of manufacturers, exporters or importers can solve without assistance from government representatives. The federal Department of Trade and Commerce, the primary function of which is the promotion of external trade, makes available to business men a wide variety of services to assist them in selling their products abroad. These services are provided by the Department's head office in Ottawa, six regional offices in Canada, and a corps of trade commissioners stationed around the world.

Services available from the various branches, divisions and agencies of the Department of Trade and Commerce are described below. The work of these entities is inter-related, each operating in its own field but working closely with the others to effect the over-all objective of trade promotion.

Trade Commissioner Service.—The Trade Commissioner Service is the overseas arm of the Department and is actively engaged in the promotion of Canadian trade and the protection of Canada's commercial interests; 67 offices are maintained in 48 countries, of which 47 posts form part of Canadian Government diplomatic missions abroad and 18 are separate trade commissioner posts.

Every effort is made by the trade commissioners to bring Canadian exporters and prospective buyers together. On their own initiative, and in response to requests from the Department and Canadian business men, they study potential markets for specific Canadian commodities and services. Reports are provided on the demand in the country concerned, prices, competition, trade and exchange regulations, tariffs, shipping and packaging requirements, credit terms, channels of distribution, labelling regulations, etc. Inquiries from local business men for goods obtainable from Canada are forwarded to the Department in Ottawa, or directly to Canadian firms in a position to supply the products required.

The supervision of Canadian exhibits at overseas trade fairs and the provision of assistance to participating Canadian firms is an important function of many offices. Trade commissioners make local arrangements for and travel with Canadian trade missions visiting overseas markets. They also seek sources of supply for a wide variety of goods on behalf of Canadian importers.

In developing trade opportunities, Canada's trade commissioners travel extensively in their territories, visit leading industrial and commercial centres, and call on government officials, business men, trade associations and municipal authorities. They establish social contacts with commercial interests, thereby developing goodwill for Canada and Canadian products, while creating connections for Canadian exporters and facilitating the collection of trade information. They return to Canada at periodic intervals and make tours of Canadian industrial and commercial centres. Such direct contacts enable them to discuss specific problems with business men and bring into focus the Canadian commercial scene.

In countries where Canada has a diplomatic mission, the Canadian trade office is the commercial division and the trade commissioner has the rank of Minister (Commercial), Minister-Counsellor (Economic), Commercial Counsellor or Commercial Secretary. When attached to a consulate, he carries the title of Deputy Consul General (Commercial), Consul (Commercial), or Vice-Consul (Commercial), according to his rank, in addition to that of Trade Commissioner. He may also be the Consul General, in charge of the office. Where trade offices are detached and do not form part of a diplomatic mission, the trade commissioner may also be required to undertake consular, immigration and other duties as the sole representative of Canada.

CANADIAN FOREIGN TRADE OFFICES ABROAD, AS AT AUG. 22, 1965

ARGENTINA.—Commercial Counsellor, Canadian Embassy, Bartolome Mitre 478, Buenos Aires. Territory includes Paraguay.

AUSTRALIA.—

Sydney: Commercial Counsellor for Canada, 21st Floor A.M.P. Bldg., Circular Quay, Sydney. Mail: P.O. Box 3952 G.P.O.

Melbourne: Commercial Counsellor for Canada, Mobil Centre, 2 City Road, Melbourne.

Canberra: Commercial Counsellor, Office of the High Commissioner for Canada, Commonwealth Ave., Canberra.

AUSTRIA.—Minister-Counsellor (Commercial), Obere Donaustrasse 49/51, Vienna II. Mail: P.O. Box 190, Vienna 1/8. Territory includes Albania, Bulgaria, Czechoslovakia, Hungary, Romania and Yugoslavia.

BELGIUM.—Commercial Counsellor, Canadian Embassy, 35 rue de la Science, Brussels 4. Territory includes Luxembourg, European Economic Community, European Atomic Energy Community and European Coal and Steel Community.

BRAZIL.—

Rio de Janeiro: Commercial Counsellor, Canadian Embassy, Edificio Metropole, Av. Presidente Wilson 165, Rio de Janeiro. Mail: Caixa Postal 2164-ZC-00.

São Paulo: Consul and Trade Commissioner, Canadian Consulate, Edificio Alois, Rua 7 de Abril 252, São Paulo. Mail: Caixa Postal 6034.

BRITAIN.—

London: Minister (Commercial), Office of the High Commissioner for Canada, One Grosvenor Square, London W.1.

Liverpool: Canadian Government Trade Commissioner, Martins Bank Bldg., Water Street, Liverpool.

Glasgow: Canadian Government Trade Commissioner, Cornhill House, 144 West George St., Glasgow C.2, Scotland.

Belfast: Canadian Government Trade Commissioner, 15-17 Chichester St., Belfast 1, Northern Ireland.

CAMEROON.—Commercial Division, Canadian Embassy, Soppo Priso Bldg., rue Joseph Clerc, Yaounde. Mail: P.O. Box 572. Territory includes Central African Republic, Chad, Congo (Brazzaville) and Gabon.

CEYLON.—Commercial Division, Office of the High Commissioner for Canada, 6 Gregory's Road, Cinnamon Gardens, Colombo. Mail: P.O. Box 1006.

CHILE.—Commercial Counsellor, Canadian Embassy, 5th Floor, Agustinas 1225, Santiago. Mail: Casilla 771.

COLOMBIA.—Commercial Secretary, Canadian Embassy, Edificio Banco de Los Andes, Carrera 10, No. 16-92, Bogota. Airmail: Apartado Aereo 8582. Surface Mail: Apartado 1618. Territory includes Ecuador.

CONGO.—Chargé d'Affaires, Canadian Embassy, C.C.C.I. Bldg., Boulevard Albert 1^{er}, Leopoldville 1. Mail: Boîte Postale 8341.

- CUBA.—Commercial Division, Canadian Embassy, Calle 30, No. 518, esquina 7a Avenida, Miramar, Havana. Mail: Gaveta 6125.
- DENMARK.—Commercial Counsellor, Canadian Embassy, Prinsesse Maries Allé 2, Copenhagen V. Territory includes Greenland and Poland.
- DOMINICAN REPUBLIC.—Acting Commercial Secretary, Canadian Embassy, Edificio Copello 408, Calle El Conde, Santo Domingo. Mail: Apartado 1393. Territory includes Puerto Rico.
- FRANCE.—Minister-Counsellor (Economic/Commercial), Canadian Embassy, 35 Ave. Montaigne, Paris 8^e. Territory includes Algeria and Morocco.
- GERMANY.—
Bad Godesberg: Commercial Counsellor, Canadian Embassy, Kennedy-Allee 35, Bad Godesberg.
Duesseldorf: Consul, Canadian Consulate, Koenigsallee 82, 4 Duesseldorf 1.
Hamburg: Consul General, Canadian Consulate General, Ferdinandstrasse 69, Hamburg.
- GHANA.—Commercial Secretary, Office of the High Commissioner for Canada, E115/3 Independence Ave., Accra. Mail: P.O. Box 1639. Territory includes Guinea, Ivory Coast, Liberia, Mali, Mauritania, Togo and Upper Volta.
- GREECE.—Commercial Counsellor, Canadian Embassy, 31 Vassilissis Sophias Ave., Athens 138. Territory includes Turkey.
- GUATEMALA.—Commercial Counsellor, Canadian Embassy, 5a Avenida 11-70, Zone 1, Guatemala City, C.A. Airmail P.O. Box 400. Surface mail: P.O. Box 444. Territory includes Costa Rica, El Salvador, Honduras, Nicaragua, Panama and Canal Zone.
- HAITI.—Chargé d'Affaires *ad interim* and Consul, Canadian Embassy, Route du Canapé Vert, St. Louis de Turgeau, Port-au-Prince. Mail: P.O. Box 826.
- HONG KONG.—Canadian Government Trade Commissioner, P&O Bldg., 11th Floor, 21-23 Des Voeux Road Central, Hong Kong. Mail: P.O. Box 126. Territory includes Cambodia, Communist China, Laos, Viet-Nam and Macao.
- INDIA.—
New Delhi: Commercial Counsellor for Canada, 13 Golf Links Road, New Delhi 1. Mail: P.O. Box 11. Territory includes Bhutan, Nepal and Sikkim.
Bombay: Canadian Government Trade Commissioner, Gresham Assurance House, Mint Road, Bombay 1-BR. Mail: P.O. Box 886.
- IRAN.—Commercial Counsellor, Canadian Embassy, Bezrouke Bldg., Corner of Takht Jamshid Ave. and Forsat St., Tehran. Mail: P.O. Box 1610.
- IRELAND.—Commercial Secretary for Canada, 66 Upper O'Connell St., Dublin.
- ISRAEL.—Commercial Secretary for Canada, 84 Hahashmonaim St., Tel Aviv. Mail: P.O. Box 20140. Territory includes Cyprus.
- ITALY.—
Rome: Commercial Counsellor, Canadian Embassy, Via G.B. De Rossi 27, Rome. Territory includes Libya and Malta.
Milan: Consul General and Trade Commissioner, Canadian Consulate General, Via Pirelli 19, Milan. Mail: G.P. 3977.
- JAMAICA.—Commercial Secretary, Office of the High Commissioner for Canada, 32 Duke St. (corner Duke and Barry Sts.), Kingston. Mail: P.O. Box 225. Territory includes Bahamas and British Honduras.
- JAPAN.—Minister (Commercial), Canadian Embassy, 16, Omote-Machi, 3-Chome, Akasaka, Minatoku, Tokyo. Mail: c/o Akasaka Post Office, Tokyo. Territory includes Korea and Okinawa.
- LEBANON.—Commercial Counsellor, Canadian Embassy, Alpha Bldg., Rue Clemenceau, Beirut. Mail: Boîte Postale 2300. Territory includes Iraq, Jordan, Persian Gulf Area, Saudi Arabia and Syria.
- MALAYSIA.—Commercial Counsellor, Canadian Embassy, Great Eastern Life Assurance Co. Bldg., 44 Ampang Road, Kuala Lumpur. Mail: P.O. Box 990.
- MEXICO.—Commercial Counsellor, Canadian Embassy, Melchor Ocampo 463, 7th Floor, Mexico 5, D.F. Mail: Apartado Postal 5-364.

- NETHERLANDS.—Commercial Counsellor, Canadian Embassy, Sophialaan 5-7, The Hague.
- NEW ZEALAND.—Commercial Counsellor, Office of the High Commissioner for Canada, 3rd Floor, I.C.I. Bldg., Molesworth St., Wellington. Mail: P.O. Box 1660. Territory includes Fiji, Western Samoa, Tahiti and Tonga.
- NIGERIA.—Commercial Secretary, Office of the High Commissioner for Canada, 4th Floor Barclays Bank Bldg., 40 Marina Road, Lagos. Mail: P.O. Box 851. Territory includes Dahomey, Gambia, Niger, Senegal and Sierra Leone.
- NORWAY.—Commercial Counsellor, Canadian Embassy, Fridtjof Nansens Plass 5, Oslo 1. Territory includes Iceland.
- PAKISTAN.—Commercial Secretary, Office of the High Commissioner for Canada, Hotel Metropole, Victoria Road, Karachi. Mail: P.O. Box 3703. Territory includes Afghanistan.
- PERU.—Commercial Counsellor, Canadian Embassy, Edificio El Pacifico, Corner of Avenida Arequipa and Plaza Washington, Lima. Mail: Casilla 1212. Territory includes Bolivia.
- PHILIPPINES.—Consul General and Trade Commissioner, Canadian Consulate General, L & S Bldg., 3rd Floor, 1414 Dewey Blvd., Manila. Mail: P.O. Box 1825. Territory includes Republic of China (Taiwan).
- PORTUGAL.—Commercial Counsellor, Canadian Embassy, Rua Marques de Fronteira, No. 8-4ºDº, Lisbon. Territory includes Angola, Azores, Cape Verde Islands, Madeira and Portuguese Guinea.
- RHODESIA.—Canadian Government Trade Commissioner, 8th Floor, Grindlay's Bank Chambers, Baker Avenue, Salisbury. Mail: P.O. Box 2133.
- SINGAPORE.—Canadian Government Trade Commissioner, American International Bldg., Robinson Road and Telegraph St., Singapore. Mail: P.O. Box 845.
- SOUTH AFRICA.—
Johannesburg: Canadian Government Trade Commissioner, Mobil House, 17th Floor, Corner Rissik and De Villiers Sts., Johannesburg. Mail: P.O. Box 715. Territory includes Malagasy, Mauritius, Mozambique and Reunion.
Cape Town: Canadian Government Trade Commissioner, 13th Floor, African Life Centre, St. George's St., Cape Town. Mail: P.O. Box 683. Territory includes St. Helena and South West Africa.
- SPAIN.—Commercial Counsellor, Canadian Embassy, Edificio España, Avenida de Jose Antonio 88, Madrid. Mail: Apartado 117. Territory includes Balearic Islands, Canary Islands, Gibraltar, Rio Muni and Spanish Sahara.
- SWEDEN.—Commercial Counsellor, Canadian Embassy, Skeppsbron 24, Stockholm. Mail: P.O. Box 14042. Territory includes Finland.
- SWITZERLAND.—Commercial Counsellor, Canadian Embassy, Kirchenfeldstrasse 88, Berne. Territory includes Tunisia.
- TRINIDAD AND TOBAGO.—Commercial Secretary, Office of the High Commissioner for Canada, Colonial Bldg., 72 South Quay, Port-of-Spain. Mail: P.O. Box 125. Territory includes Barbados, Windward and Leeward Islands, British Guiana, French Guiana, Surinam, Guadeloupe and Martinique.
- UNITED OF SOVIET SOCIALIST REPUBLICS.—Commercial Secretary, Canadian Embassy, 23 Starokonushenny Pereulok, Moscow.
- UNITED ARAB REPUBLIC.—Commercial Division, Canadian Embassy, 6 Sharia Rouston Pasha, Garden City, Cairo. Mail: Kasr el Doubara Post Office. Territory includes Aden, Sudan, Ethiopia and Yemen.
- UNITED STATES.—
Washington: Commercial Counsellor, Canadian Embassy, 1746 Massachusetts Ave., N.W., Washington 36, D.C.
New York City: Deputy Consul General (Commercial), Canadian Consulate General, 680 Fifth Ave., New York City 19. Territory includes Bermuda.
Boston: Consul and Senior Trade Commissioner, Canadian Consulate General, 607 Boylston St., Boston 16.
Chicago: Consul and Senior Trade Commissioner, Canadian Consulate General, 310 South Michigan Ave., Suite 2000, Chicago 60604.

Cleveland: Consul and Senior Trade Commissioner, Canadian Consulate, Illuminating Building, 55 Public Square, Cleveland.

Detroit: Consul and Trade Commissioner, Canadian Consulate, 1139 Penobscot Bldg., Detroit 48226.

Los Angeles: Consul and Trade Commissioner, Canadian Consulate General, 510 West Sixth St., Los Angeles 14.

New Orleans: Consul and Trade Commissioner, Canadian Consulate General, Suite 1710, 225 Baronne St., New Orleans 12.

Philadelphia: Consul and Trade Commissioner, Canadian Consulate, 3 Penn Center Plaza, Philadelphia 2.

San Francisco: Consul General, Canadian Consulate General, 333 Montgomery St., San Francisco 4. Territory includes Hawaii.

Seattle: Consul General, Canadian Consulate General. The Tower Bldg., Seventh Ave. at Olive Way, Seattle 1. Territory includes Alaska.

URUGUAY.—Commercial Counsellor, Canadian Embassy, No. 1409 Avenida Agraciada, Piso 7°, Montevideo. Mail: Casilla Postal 852. Territory includes Falkland Islands.

VENEZUELA.—Commercial Secretary, Canadian Embassy, Avenida La Estancia No. 10, Ciudad Comercial Tamanaco, Caracas. Mail: Apartado 11452-Este. Territory includes Netherlands Antilles.

Trade Fairs and Missions Branch.—It is the responsibility of this Branch to organize and co-ordinate the Department's annual program of participation in trade fairs abroad and of outgoing and incoming trade missions. The Trade Fairs Abroad Division and the Trade Missions Division co-ordinate departmental activity in implementing these promotion programs and in organizing the trade fair exhibits and trade missions scheduled during the year. The Branch Director acts as chairman of the departmental committees that select the program and the Division Chiefs preside over working committees appointed to handle detailed planning. The Branch also provides liaison with Trade Commissioner Service posts abroad, trade associations in Canada, provincial governments and other federal departments or agencies in the development of trade promotion programs.

In 1965 the Department of Trade and Commerce sponsored exhibits in 43 trade fairs abroad in such key markets as the United States, England, Japan, West Germany, France, Italy and Scotland. The products of hundreds of Canadian manufacturers were exhibited to potential foreign buyers numbering more than 15,000,000. The 20 trade missions organized in 1965 included 15 teams of Canadian business men sent abroad to study special markets in Europe, the United States, Africa, Latin America and South-East Asia and five groups of business visitors brought to Canada from Europe and the Caribbean.

Office of Trade Relations.—The main function of the Office of Trade Relations is to safeguard and improve terms of access for Canadian exporters in foreign markets. The Office is concerned with the conduct of Canadian trade relations with other countries, including the negotiation and administration of trade agreements and Canadian participation in international conferences and meetings dealing with trade and economic matters. It endeavours to find practical solutions for tariff problems and other difficulties encountered in foreign markets by Canadian exporters and, as a service to exporters, provides expert information, advice and assistance on foreign tariffs, import and exchange controls, documentation requirements and other foreign governmental regulations affecting Canada's trade. The Office also has responsibilities in relation to the export financing facilities available for the development of exports of Canadian capital equipment. The Area Divisions of the Office—Commonwealth, United States, European, Latin American and Asia and Middle East—are the central points of contact between Canada's trade commissioners abroad and the Department in Ottawa.

Transportation and Trade Services Branch.—The functions of this Branch relate to transportation problems, export and import controls, trade directories, the administration of the six Regional Offices and the provision of general guidance to firms seeking entry into the export field. These activities are conducted by three Divisions: the Transportation

Division is concerned primarily with industrial transportation from the user's point of view, keeping in touch with developments and trends in shipping services and in freight rates; the Export and Import Permits Division administers the controls established under the Export and Import Permits Act; and the Regional Offices and Trade Services Division administers the Department's Regional Offices and compiles the Exporters' Directory, a confidential list of firms engaged in or seriously interested in exporting commodities or services.

Commodity Branches.—The Commodities and Industries Services include three commodity branches—the Agriculture and Fisheries Branch, the Industrial Materials Branch and the Manufacturing Industries and Engineering Branch. These branches provide the main link between industry and the Department; they maintain close contact with the business community to be familiar with production and supply conditions in Canada. Emphasis is placed on the search for products and services, the sale of which can be promoted abroad.

The Agriculture and Fisheries Branch is organized into five divisions to cover fisheries, grain, livestock and animal products, plant products, and commodity arrangements and market developments. The Industrial Materials Branch is composed of three divisions to handle chemicals, forest products and metals and minerals. The Manufacturing Industries and Engineering Branch is organized into four divisions responsible for appliances and commercial machinery, electrical and electronic equipment, mechanical equipment and engineering, and textiles and consumer goods. These divisions are staffed by commodity officers who are specialists in their fields and are available to assist Canadian business men.

Commodity officers visit manufacturing plants and production facilities, attend and address meetings of business associations and study groups and prepare product reports and market surveys. They constitute the principal channel through which information on Canadian products and services reaches Canadian trade commissioners abroad and a channel through which information on sales opportunities in countries abroad is disseminated to industry in Canada. They continually analyse reports from trade commissioners abroad to determine potential markets for commodities and services of interest to Canadian industry. In co-operation with the Canadian Government Exhibition Commission, they assist in making arrangements for the display of commodities in trade fairs throughout the world to introduce Canadian products into new markets. They organize and accompany departmental trade missions and serve as delegates to international commodity conferences to study world market conditions and to consider corrective adjustments.

Trade Publicity Branch.—The function of the Trade Publicity Branch is to stimulate interest in Canadian products in foreign markets and to encourage Canadian manufacturers to look beyond domestic horizons. Advertising, public relations and publicity techniques are used in varying combinations to accomplish these objectives. Advertising, periodicals, booklets, brochures and other printed matter are used in direct support of trade fairs and missions; news releases, radio tape recordings and television film clips are employed to inform Canadians of foreign trade opportunities and successes.

The Branch is composed of an Operations Group and five Divisions. The Operations Group plans and executes the major activities concerning trade fairs and in-store promotions. Working closely with that Group is the Editorial Division which employs writers and editors, and the Art Division which is responsible for design, production and technical work. The Media Relations Division prepares and distributes press releases, articles, photographs, speeches and background material to newspapers, radio and television stations, magazines and the Canadian trade press. It provides publicity material for distribution abroad and produces and distributes films and television clips to promote interest in Canada as a supplier of many commodities. The Canada Courier Division produces *Canada Courier*, an illustrated, eight-page international trade promotion newspaper, published on behalf of Canadian exporters to promote products and services abroad. It has a circulation of 97,000 and is distributed in more than 100 countries. The English edition

is published six times a year and the French, Spanish and German editions twice annually. The Foreign Trade Division publishes the magazine *Foreign Trade*, fortnightly, and *Commerce extérieur*, monthly. These journals, designed to help Canadian exporters, contain information on overseas markets, tariffs, exchange rates and other pertinent trade data.

Canadian Government Exhibition Commission.—The Commission organizes, designs, produces and administers all Canadian exhibits at fairs and exhibitions abroad in which the Canadian Government participates and also advises private exhibitors and their agents on the best means of displaying Canadian products at trade fairs. It acts as a central service agency for all government departments and agencies in the preparation of conventional exhibits and displays for showing in Canada and is responsible for international fairs and exhibitions held in Canada that are financed and sponsored by the Government of Canada.

Canadian Government Travel Bureau.—The Canadian Government Travel Bureau is in operation to encourage tourist travel to Canada and to co-ordinate the tourist promotion conducted by the provinces, transportation companies and national, regional and local tourist associations. The Bureau undertakes extensive tourist advertising campaigns abroad, provides tourist publicity material for foreign newspapers, magazines, radio and television outlets, and annually handles about 1,500,000 inquiries from potential visitors to Canada. Tourist offices are operated in New York, Chicago, San Francisco, Minneapolis, Los Angeles, Boston, Philadelphia, Cincinnati, Rochester, Indianapolis, Cleveland, Detroit and Seattle in the United States; the Bureau also has representation in London, Paris, Frankfurt, Mexico City and Tokyo.

Export Credits Insurance Corporation.—This Corporation was established under the provisions of the Export Credits Insurance Act, 1944 (RSC 1952, c. 105, as amended) and is administered by a Board of Directors that includes the Deputy Minister of Trade and Commerce and the Deputy Minister of Finance. It operates in two fields—export credits insurance and export financing.

Insurance is available to all persons or corporations carrying on business in Canada to cover export sales made on customary credit terms. It provides protection against risks involved in the export, manufacture, treatment or distribution of goods, or the rendering of engineering, construction, technical or similar services. The main risks covered include: insolvency or protracted default on the part of the buyer; exchange restrictions in the buyer's country preventing the transfer of funds to Canada; cancellation of an import licence or the imposition of restrictions on the importation of goods not previously subject to restrictions; the occurrence of war between the buyer's country and Canada, or of war, revolution, etc., in the buyer's country. The insurance is available under three main classifications—general commodities, capital goods and services. General commodities policies cover a policyholder's export sales to all countries except the United States for a period of one year, and are renewable. Two types are available: the contracts policy, which insures an exporter against loss from the time he books an order until payment is received; or the shipments policy, obtainable at lower rates of premium and covering the exporter from the time of shipment until payment is received. Insurance of capital goods offers protection to exporters dealing in plant equipment, heavy machinery, etc., where extended credit up to a maximum of five years may be necessary. Specific policies are issued for transactions involving capital goods but the general terms and conditions are the same as those applicable to policies for general commodities. Specific policies are also issued to cover engineering, construction, technical or similar service contracts entered into between Canadian firms and persons in foreign countries who have agreed to purchase such services.

The Corporation insures exporters on a co-insurance basis, the exporter retaining a small percentage of the risk involved, and the same principle operates in the distribution of recoveries obtained after the payment of a claim. When, in the opinion of the Minister of

Trade and Commerce, a proposed transaction is in the national interest but would impose upon the Corporation a liability for a term or in an amount in excess of that normally undertaken, the Corporation may be authorized by the Governor in Council to enter into a contract of insurance at the Government's risk.

The Corporation also administers direct financing facilities available under the Act in cases where export sales involving capital goods are of such a nature as to warrant credit terms in excess of five years. The Corporation, when authorized by the Governor in Council, buys the promissory notes or other negotiable instruments of the foreign purchaser.

Section 2.—The Development of Tariffs

Limitations of space in the Year Book have made it necessary, in regard to tariffs, to adopt the policy of confining any detail regarding commodities and countries to tariff relationships in force at present and to summarize as much as possible historical data and details of preceding tariffs.

Subsection 1.—The Canadian Tariff Structure*

The Canadian Tariff consists, in the main, of three sets of tariff rates—British Preferential, Most-Favoured-Nation, and General.

British Preferential Tariff rates are, with some exceptions, the lowest rates. They are applied to imported commodities from British countries, with the exception of Hong Kong, when conveyed without trans-shipment from a port of any British country enjoying the benefits of the British Preferential Tariff into a port of Canada. Some Commonwealth countries have trade agreements with Canada which provide for rates of duty, on certain specified goods, lower than the British Preferential rates.

Most-Favoured-Nation rates are usually higher than the British Preferential rates and lower than the General Tariff rates. They are applied to commodities imported from countries with which Canada has trade agreements. These rates would apply to British countries when they are lower than the British Preferential Tariff rates. The most important trade agreement concerning the effective rates applied to goods imported from countries entitled to Most-Favoured-Nation rates is the General Agreement on Tariffs and Trade (GATT).

General Tariff rates are applied to goods imported from the few countries with which Canada has not made trade agreements.

There are numerous goods which are duty free under the British Preferential Tariff, or under both the British Preferential and Most-Favoured-Nation Tariffs, or under all Tariffs.

Valuation.—In general, the Customs Act provides that the value for duty of imported goods shall be the fair market value of like goods as established in the home market of the exporter at the time when and place from which the goods are shipped directly to Canada when sold "(a) to purchasers located at that place with whom the vendor deals at arm's length and who are at the same or substantially the same trade level as the importer, and (b) in the same or substantially the same quantities for home consumption in the ordinary course of trade under competitive conditions". In cases where like goods are not sold for home consumption but similar goods are sold, the value for duty shall be the cost of production of the goods imported plus an amount for gross profit equal in percentage to that earned on the sale of similar goods in the country of export. The value for duty ordinarily may not be less than the amount for which the goods were sold to the purchaser in Canada, exclusive of all charges thereon after their shipment from the country of export. Internal taxes in the country of export (when not incurred on exported goods), the cost of shipping

* Information relating to rate of duty and value for duty is available from the Department of National Revenue, Customs and Excise Division, which administers the Customs Act and the Customs Tariff.

goods to Canada and similar charges do not normally form part of the value for duty. There are, of course, further provisions for determining value for duty under the Act.

Dumping.—Sect. 6 of the Customs Tariff provides that when the actual selling price of goods being imported is less than the fair market value and the goods are of a class or kind made or produced in Canada, a special or dumping duty shall be collected. This duty is to be equal to the difference between the actual selling price and the fair market value of the goods, except that it may not be more than 50 p.c. ad valorem. These provisions are designed to offset the advantage foreign exporters may achieve by exporting to Canada at less than the going prices in the country of export.

Drawback.—There are provisions in the Customs and Excise Tax Acts for the repayment of a portion of the duty, sales and/or excise taxes paid on imported goods used in the manufacture of products later exported. The purpose of these drawbacks (as these repayments are called) is to assist Canadian manufacturers to compete in foreign markets with foreign producers of similar goods. A second class of drawback, known as "home consumption" drawbacks, is provided for under the Customs Act and the Customs Tariff Act and applies to imported materials and/or parts used in the production of specified goods to be consumed in Canada.

The Tariff Board.—The organization and functions of the Tariff Board are described at p. 127 of this volume.

Subsection 2.—Tariff and Trade Arrangements with Other Countries as at Dec. 31, 1964

Canada's tariff arrangements with other countries fall into three main categories: trade agreements with a number of Commonwealth countries; the General Agreement on Tariffs and Trade (GATT); and other agreements and arrangements.

The Commonwealth countries with which Canada has trade agreements providing for exchange of preferential rates are: Australia, Bahamas, Barbados, Bermuda, British Guiana, British Honduras, Jamaica, the Leeward and Windward Islands, Trinidad and Tobago, New Zealand, Britain and its dependent territories and the members of the former Federation of Rhodesia and Nyasaland (Malawi, Rhodesia and Zambia). Canada also exchanges preferences with Ceylon, Cyprus, Malaysia, Malta and Sierra Leone and accords preferences to India, Pakistan, Ghana, Nigeria, Kenya, Tanzania and Uganda. Many of these countries are also members of the GATT. In addition, Canada has trade agreements with Ireland and South Africa under which preferences are exchanged.

Canada signed the Protocol of Provisional Application of the General Agreement on Tariffs and Trade on Oct. 30, 1947, and brought the General Agreement into force on Jan. 1, 1948. The Agreement provides for scheduled tariff concessions and the exchange of most-favoured-nation treatment among the contracting parties, and lays down rules and regulations to govern the conduct of international trade.

The membership of the GATT increased by four during 1964 and at the end of the year there were 64 full members. These countries and the effective dates of their accession are indicated in the list on pp. 948-955. In addition, Switzerland, Tunisia, Argentina, Yugoslavia, the United Arab Republic and Iceland are provisional members. The GATT is applied on a *de facto* basis to a number of newly independent states, Algeria, Burundi, Congo (Leopoldville), Mali and Rwanda, pending final decisions as to their future commercial policy. Two other countries, Cambodia and Poland, although not members, participate in the work of the GATT.

Trade relations between Canada and a number of other countries are governed by trade agreements of various kinds, by exchange of most-favoured-nation treatment under Orders in Council, by continuation to newly independent states of the same treatment originally negotiated with the countries previously responsible for their commercial relations, and by even less formal arrangements.

Tariff and Trade Arrangements with Commonwealth Countries as at Dec. 31, 1964

Country	Agreement	Principal Terms
AUSTRALIA.....	Trade Agreement signed Feb. 12, 1960; in force June 30, 1960. GATT effective Jan. 1, 1948.	Agreement includes schedules of tariff rates and exchange of British preferential rates on items not scheduled. May be terminated on six months notice.
BRITAIN.....	Trade Agreement signed Feb. 23, 1937, effective Sept. 1, 1937; modified by exchanges of letters Nov. 16, 1938 and Oct. 20, 1947. GATT effective Jan. 1, 1948.	Various concessions are granted by each country including exchange of preferential tariff rates. The Agreement (as modified) includes provisions relating to the Colonies, Dependencies and Trustships.
BRITISH CARIBBEAN, BAHAMAS, BARBADOS, BERMUDA, BRITISH GUIANA, BRITISH HONDURAS, THE LEEWARD ISLANDS, AND THE WINDWARD ISLANDS.	Canada-West Indies Trade Agreement signed July 6, 1925, in force Apr. 30, 1927; Canadian notice of termination of Nov. 23, 1938, was replaced by notice of Dec. 27, 1939, which continued the Agreement. Barbados, Bermuda, British Guiana, British Honduras and the Leeward and the Windward Islands participate in GATT.	The parties exchange specified tariff preferences. Agreement may be terminated on six months notice.
CEYLON.....	Relations continue to be governed by Trade Agreement of 1937 with Britain. GATT effective July 29, 1948.	Canada and Ceylon exchange preferential tariff treatment.
CYPRUS.....	Relations continue to be governed by Trade Agreement of 1937 with Britain. GATT effective Aug. 16, 1960.	Canada exchanges preferential treatment with Cyprus.
GHANA.....	Relations continue to be governed by Trade Agreement of 1937 with Britain GATT effective Oct. 18, 1957.	Canada accords Ghana the British preferential rates, except on cocoa beans. Exchange of most-favoured-nation treatment.
INDIA.....	Since 1897 Canada has unilaterally accorded British preferential treatment without contractual obligation. GATT effective July 8, 1948.	Canada accords British preferential treatment to India. Exchange of most-favoured-nation treatment.
JAMAICA.....	Relations continue to be governed by Canada-West Indies Trade Agreement (see British Caribbean). GATT effective Aug. 8, 1962.	The parties exchange specified tariff preferences. Agreement may be terminated on six months notice.
KENYA.....	Relations continue to be governed by Trade Agreement of 1937 with Britain. GATT effective Dec. 12, 1963.	Canada accords British preferential treatment to Kenya. Exchange of most-favoured-nation treatment.
MALAWI.....	Relations continue to be governed by Trade Agreement of 1937 with former Federation of Rhodesia and Nyasaland. GATT effective July 6, 1964.	Canada exchanges preferential treatment with Malawi.
MALAYSIA.....	Relations continue to be governed by Trade Agreement of 1937 with Britain. GATT effective Sept. 16, 1953.	Canada and Malaysia exchange preferential tariff treatment.
MALTA.....	Relations continue to be governed by Trade Agreement of 1937 with Britain. GATT effective Sept. 21, 1964.	Canada exchanges British preferential treatment with Malta.
NEW ZEALAND.....	Trade Agreement signed Apr. 23, 1932; in force May 24, 1932. GATT effective July 26, 1948.	The parties exchange specific preferences on scheduled goods and reciprocally concede British preferential rates on items not scheduled. May be terminated on six months notice.

**Tariff and Trade Arrangements with Commonwealth Countries as at
Dec. 31, 1964—concluded**

Country	Agreement	Principal Terms
NIGERIA, FEDERATION OF.....	Relations continue to be governed by Trade Agreement of 1937 with Britain GATT effective Oct. 1, 1960.	Canada accords British preferential treatment to Nigeria. Exchange of most-favoured-nation treatment.
PAKISTAN.....	Canada unilaterally accords British preferential treatment without contractual obligation. GATT effective July 30, 1948.	Canada accords British preferential treatment to Pakistan. Exchange of most-favoured-nation treatment.
RHODESIA.....	Relations continue to be governed by Trade Agreement of 1958 with former Federation of Rhodesia and Nyasaland. GATT effective in Southern Rhodesia, May 19, 1948; extended to Federation Oct. 29, 1954; resumed its full membership in GATT Jan. 1, 1964.	Canada and Rhodesia exchange preferential tariff treatment.
SIERRA LEONE.....	Relations continue to be governed by Trade Agreement of 1937 with Britain. GATT effective Apr. 27, 1961.	Canada and Sierra Leone exchange preferential tariff treatment.
TRINIDAD AND TOBAGO.....	Relations continue to be governed by Canada-West Indies Trade Agreement. GATT effective Aug. 31, 1962.	The parties exchange specified tariff preferences. Agreement may be terminated on six months notice.
UGANDA.....	Relations continue to be governed by Trade Agreement of 1937 with Britain. GATT effective Oct. 9, 1962.	Canada accords British preferential treatment to Uganda. Exchange of most-favoured-nation treatment.
UNITED REPUBLIC OF TANZANIA.	Relations continue to be governed by Trade Agreement of 1937 with Britain. GATT effective for Tanganyika Dec. 9, 1961 and extended to Zanzibar upon formation of United Republic Apr. 23, 1964.	Canada accords British preferential treatment to the United Republic of Tanzania. Exchange of most-favoured-nation treatment.
WESTERN SAMOA.....	Relations continue to be governed by Trade Agreement of 1932 with New Zealand.	The parties exchange specific preferences on scheduled goods and reciprocally concede British preferential rates on items not scheduled.
ZAMBIA.....	Relations continue to be governed by Trade Agreement of 1958 with former Federation of Rhodesia and Nyasaland. GATT has <i>de facto</i> application for Zambia for a two-year period effective Oct. 24, 1964.	Canada exchanges preferential treatment with Zambia. Exchange of most-favoured-nation treatment.

**Tariff and Trade Arrangements with Non-Commonwealth Countries as at
Dec. 31, 1964**

Country	Agreement	Principal Terms
ALGERIA.....	Franco-Canadian Trade Agreement of 1933 applied to Algeria. Algeria maintains a <i>de facto</i> application of the GATT.	Since the creation of Algeria as an independent state in 1962, Canada has continued to grant most-favoured-nation treatment.

**Tariff and Trade Arrangements with Non-Commonwealth Countries as at
Dec. 31, 1964—continued**

Country	Agreement	Principal Terms
ARGENTINA.....	Trade Agreement signed Oct. 2, 1941; provisionally in force Nov. 15, 1941. Argentina has acceded to GATT provisionally.	Exchange of most-favoured-nation treatment. Provisional application may be terminated on three months notice.
AUSTRIA.....	GATT effective Oct. 19, 1951.	Exchange of most-favoured-nation treatment.
BELGIUM-LUXEMBOURG.....	Convention of Commerce with Belgium-Luxembourg Economic Union (including Belgian colonies) entered into effect Oct. 22, 1924. GATT effective Jan. 1, 1948.	Exchange of most-favoured-nation treatment. May be terminated on one years notice.
BENELUX (BELGIUM-NETHERLANDS-LUXEMBOURG CUSTOMS UNION).	(See Belgium-Luxembourg and Netherlands.)	
BOLIVIA.....	Order in Council of July 20, 1935, accepted Article 15 of U.K.-Bolivia Treaty of Commerce of Aug. 1, 1911.	Exchange of most-favoured-nation treatment. May be terminated on one years notice.
BRAZIL.....	Trade Agreement signed Oct. 17, 1941; provisionally in force from date of signing and definitively on Apr. 16, 1943. GATT effective July 31, 1948.	Exchange of most-favoured-nation treatment.
BULGARIA.....	Trade Agreement signed Oct. 8, 1963; provisionally in force from date of signing.	Exchange of most-favoured-nation treatment and undertaking by Bulgaria to purchase a minimum of 300,000 metric tons of wheat or equivalent in flour during the three years validity of the Agreement.
BURMA.....	GATT effective July 29, 1948.	Exchange of most-favoured-nation treatment.
BURUNDI.....	Burundi maintains a <i>de facto</i> application of the GATT.	Canada grants most-favoured-nation treatment.
CAMBODIA.....	Franco-Canadian Trade Agreement of 1933 applied to Cambodia. Although not a full member, Cambodia takes part in the work of GATT under a special arrangement.	Since the creation of Cambodia as an independent state in 1955, Canada has continued to grant most-favoured-nation treatment.
CAMEROON.....	Franco-Canadian Trade Agreement of 1933 applied to Cameroon. GATT effective Nov. 28, 1960.	Exchange of most-favoured-nation treatment.
CENTRAL AFRICAN REPUBLIC...	Franco-Canadian Trade Agreement of 1933 applied to Central African Republic. GATT effective Aug. 14, 1960.	Exchange of most-favoured-nation treatment.
CHAD.....	Franco-Canadian Trade Agreement of 1933 applied to Chad. GATT effective Aug. 11, 1960.	Exchange of most-favoured-nation treatment.
CHILE.....	Trade Agreement signed Sept. 10, 1941; provisionally in force Oct. 15, 1941, and definitively on Oct. 29, 1943. GATT effective Mar. 16, 1948.	Exchange of most-favoured-nation treatment.
CHINA.....	<i>Modus vivendi</i> signed Sept. 26, 1946. Covers the territory of China and Taiwan.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
COLOMBIA.....	Treaty of Commerce with Britain of Feb. 16, 1866, applies to Canada. Modified by protocol of Aug. 20, 1912, and exchange of notes Dec. 30, 1938.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.

**Tariff and Trade Arrangements with Non-Commonwealth Countries as at
Dec. 31, 1964—continued**

Country	Agreement	Principal Terms
CONGO (BRAZZAVILLE).....	Franco-Canadian Trade Agreement of 1933 applies to Congo (Brazzaville). GATT effective Aug. 15, 1960.	Exchange of most-favoured-nation treatment.
CONGO (LEOPOLDVILLE).....	Belgo-Canadian Convention of Commerce of 1924 applied to Congo (Leopoldville). Maintains a <i>de facto</i> application of the GATT.	Since the Congo's independence in 1960, Canada has continued to grant most-favoured-nation treatment.
COSTA RICA.....	<i>Modus vivendi</i> signed Nov. 18, 1950; brought into force Jan. 26, 1951.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
CUBA.....	GATT effective Jan. 1, 1948.	Exchange of most-favoured-nation treatment.
CZECHOSLOVAKIA.....	Convention of Commerce signed Mar. 15, 1928; in force Nov. 14, 1928. GATT effective May 21, 1948.	Exchange of most-favoured-nation treatment. May be terminated on one years notice.
DAHOMEY.....	Franco-Canadian Trade Agreement of 1933 applied to Dahomey. GATT effective Aug. 1, 1960.	Exchange of most-favoured-nation treatment.
DENMARK (INCLUDING GREENLAND).	Treaties of Peace and Commerce with Britain of Feb. 13, 1960 and July 11, 1970, apply to Canada. GATT effective May 28, 1950.	Exchange of most-favoured-nation treatment. Declaration of May 9, 1912 provides means for separate termination by Dominions on one years notice.
DOMINICAN REPUBLIC.....	Trade Agreement signed Mar. 8, 1940; in force Jan. 22, 1941. GATT effective May 19, 1950.	Exchange of most-favoured-nation treatment including scheduled concessions.
ECUADOR.....	<i>Modus vivendi</i> signed Nov. 10, 1950; in force Dec. 1, 1950.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
EGYPT.....	(See United Arab Republic.)	
EL SALVADOR.....	Exchange of notes of Nov. 2, 1937; in force Nov. 17, 1937.	Exchange of most-favoured-nation treatment. May be terminated on four months notice.
ETHIOPIA.....	Exchange of notes effective June 3, 1955.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
FINLAND.....	Exchange of notes of Nov. 13-17, 1948; effective Nov. 17, 1948. GATT effective May 25, 1950.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
FRANCE AND FRENCH OVERSEAS TERRITORIES.	Trade Agreement signed May 12, 1933; in force June 10, 1933. Exchange of notes of Sept. 29, 1934, and additional protocol of Feb. 26, 1935. GATT effective Jan. 1, 1948.	Exchange of most-favoured-nation treatment including scheduled concessions. May be terminated on three months notice.
GABON.....	Franco-Canadian Trade Agreement of 1933 applied to Gabon. GATT effective Aug. 17, 1960.	Exchange of most-favoured-nation treatment.
GERMANY, FEDERAL REPUBLIC OF.	GATT effective Oct. 1, 1951.	Exchange of most-favoured-nation treatment.
GREECE.....	<i>Modus vivendi</i> by exchange of notes of July 24-28, 1947. GATT effective Mar. 1, 1950.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
GREENLAND.....	(See Denmark.)	
GUATEMALA.....	Trade Agreement signed Sept. 28, 1937; in force Jan. 14, 1939.	Exchange of most-favoured-nation treatment. May be terminated on six months notice.

**Tariff and Trade Arrangements with Non-Commonwealth Countries as at
Dec. 31, 1964—continued**

Country	Agreement	Principal Terms
GUINEA.....	Franco-Canadian Trade Agreement of 1933 applied to Guinea.	Since the creation of Guinea as an independent state in 1958, Canada has continued to grant most-favoured-nation treatment.
HAITI.....	Trade Agreement signed Apr. 23, 1937; in force Jan. 10, 1939. GATT effective Jan. 1, 1950.	Exchange of most-favoured-nation treatment.
HONDURAS.....	Exchange of Notes signed July 11, 1956, effective July 18, 1956. Ratified in Honduras Sept. 5, 1956.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
HUNGARY.....	Trade Agreement signed June 11, 1964; provisionally in force from date of signing.	Exchange of most-favoured-nation treatment and undertaking by Hungary to purchase a minimum of \$24,000,000 of wheat and other unspecified products during the three years validity of the Agreement. Hungary is committed to purchase 250,000 metric tons of wheat.
ICELAND.....	Although there is no contractual obligation, Canada and Iceland adhere to the terms of a treaty originally concluded between Denmark and Britain on Feb. 13, 1860. Iceland has acceded to GATT provisionally.	Exchange of most-favoured-nation treatment.
INDONESIA.....	GATT effective Mar. 1, 1948.	Exchange of most-favoured-nation treatment.
IRAN.....	Special arrangement by Order in Council effective Feb. 1, 1951. Iran accorded most-favoured-nation treatment from Sept. 5, 1956.	Canada grants most-favoured-nation tariff rates as long as Iran accords reciprocal treatment.
IRAQ.....	Special arrangement by Order in Council effective Sept. 15, 1951.	Exchange of most-favoured-nation tariff treatment.
IRELAND.....	Trade Agreement signed Aug. 20, 1932; in force Jan. 2, 1933.	Canada grants British preferential tariff in return for preferential rates where such exist and for most-favoured-nation rates on non-preferential items. May be terminated on six months notice.
ISRAEL.....	Canada-U.K. Agreement of 1937 continued to apply to the State of Israel after its foundation in May 1948. GATT effective July 5, 1962.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
ITALY.....	<i>Modus vivendi</i> by exchange of notes of Apr. 23-28, 1948; effective Apr. 28, 1948. GATT effective Jan. 1, 1950.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
IVORY COAST.....	Franco-Canadian Trade Agreement of 1933 applied to the Ivory Coast. GATT effective Aug. 7, 1960.	Exchange of most-favoured-nation treatment.
JAPAN.....	Agreement on Commerce signed Mar. 31, 1954; effective June 7, 1954. GATT effective Sept. 10, 1955.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
KUWAIT.....	Canada-U.K. Agreement of 1937 applied to Kuwait as a British Protectorate. GATT effective June 18, 1961.	Since independence of Kuwait in June 1961, Canada has continued to accord most-favoured-nation treatment.
LAOS.....	Franco-Canadian Trade Agreement of 1933 applied to Laos.	Since the creation of Laos as an independent state in 1955, Canada has continued to grant most-favoured-nation treatment.
LEBANON.....	Special arrangement by Order in Council of Nov. 19, 1946.	Canada grants most-favoured-nation tariff rates as long as Lebanon accords reciprocal treatment.

**Tariff and Trade Arrangements with Non-Commonwealth Countries as at
Dec. 31, 1964—continued**

Country	Agreement	Principal Terms
LIBERIA.....	Special arrangement by Order in Council effective Mar. 1, 1955.	Canada grants most-favoured-nation treatment.
LIECHTENSTEIN.....	(See Switzerland.)	
LUXEMBOURG.....	(See Belgium-Luxembourg.)	
MALAGASY REPUBLIC.....	Franco-Canadian Trade Agreement of 1933 applied to Malagasy Republic. GATT effective June 25, 1960.	Exchange of most-favoured-nation treatment.
MALI, FEDERATION OF.....	Franco-Canadian Trade Agreement of 1933 applied to Mali. Mali maintains a <i>de facto</i> application of the GATT.	Since the creation of Mali as an independent state in 1960, Canada has continued to grant most-favoured-nation treatment.
MAURITANIA.....	Franco-Canadian Trade Agreement of 1933 applied to Mauritania. GATT effective Nov. 28, 1960.	Exchange of most-favoured-nation treatment.
MEXICO.....	Trade Agreement signed Feb. 8, 1946; in force provisionally same date. Ratifications exchanged on May 6, 1947; definitively in force 30 days from that date.	Exchange of most-favoured-nation treatment. May be terminated on six months notice.
MOROCCO.....	Various agreements relating to former French, Spanish and International Zones of Morocco.	Since the creation of Morocco as an independent state in 1956, Canada has continued to grant most-favoured-nation treatment.
NETHERLANDS.....	Convention of Commerce of July 11, 1924. Suspended during war; reinstated by exchange of notes Feb. 1 and 5, 1946. Includes Netherlands Antilles and Surinam. GATT effective Jan. 1, 1948.	Exchange of most-favoured-nation treatment. May be terminated on one years notice.
NICARAGUA.....	Trade Agreement signed Dec. 19, 1946; in force provisionally same date. GATT effective May 28, 1950.	Exchange of most-favoured-nation treatment.
NIGER.....	Franco-Canadian Trade Agreement of 1933 applied to Niger. GATT effective Aug. 3, 1960.	Exchange of most-favoured-nation treatment.
NORWAY.....	Convention of Commerce and Navigation with U.K. of Mar. 18, 1826, applied to Canada. GATT effective July 10, 1948.	Exchange of most-favoured-nation treatment. Convention of May 18, 1913 provides means for separate termination by Dominions on one years notice.
PANAMA.....	Order in Council of July 20, 1935, accepted Article 12 of U.K.-Panama Treaty of Commerce of Sept. 25, 1928. Treaty terminated in 1942.	While contractual obligation has expired, Canada and Panama continue to exchange most-favoured-nation treatment.
PARAGUAY.....	Exchange of notes of May 21, 1940; in force June 21, 1940.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
PERU.....	GATT effective Oct. 8, 1951.	Exchange of most-favoured-nation treatment.
PHILIPPINES.....	No agreement.	Canada and Philippines, without contractual obligation, continue to exchange most-favoured-nation treatment (excluding preferences accorded by the Philippines to the United States).
POLAND.....	Convention of Commerce signed July 3, 1935, in force Aug. 15, 1936. Although not a full member, Poland takes part in the work of GATT under a special arrangement.	Exchange of most-favoured-nation treatment including scheduled reductions. May be terminated on three months notice.

**Tariff and Trade Arrangements with Non-Commonwealth Countries as at
Dec. 31, 1964—continued**

Country	Agreement	Principal Terms
PORTUGAL, PORTUGUESE ADJACENT ISLANDS AND PORTUGUESE OVERSEAS PROVINCES.	Trade Agreement signed May 28, 1954 provisionally in effect July 1, 1954, de- finitively in force on ratification Apr. 29, 1955. GATT effective May 6, 1962.	Exchange of most-favoured-nation treat- ment. Remains in effect for two years from ratification and thereafter unless terminated on three months notice.
RWANDI.....	Rwandi maintains a <i>de facto</i> application of the GATT.	Canada grants most-favoured-nation treatment.
SENEGAL.....	Franco-Canadian Trade Agreement of 1933 applied to Senegal. GATT effective June 20, 1960.	Exchange of most-favoured-nation treat- ment.
SOUTH AFRICA.....	Trade Agreement signed Aug. 20, 1932; in force Oct. 13, 1932. Exchange of notes Aug. 2-31, 1935; effec- tive retroactively from July 1, 1935. GATT effective June 14, 1948.	Exchange of British preferential rates on scheduled items. May be terminated on six months notice. Exchange of most-favoured-nation treat- ment. May be terminated on six months notice.
SPAIN AND SPANISH POSSESSIONS.	Since Aug. 1, 1923, Canada has adhered to U.K.-Spain Treaty of Commerce of Oct. 31, 1922. Trade Agreement signed May 26, 1954, provisionally in effect July 1, 1954, de- finitively in force on ratification June 30, 1955. GATT effective Aug. 29, 1963.	Exchange of most-favoured-nation treat- ment. May be terminated on three months notice. Supplements and amends U.K.-Spain Treaty of Commerce. Remains in effect for three years from ratification, and thereafter unless terminated on three months notice.
SWEDEN.....	U.K.-Sweden Convention of Commerce and Navigation of Mar. 18, 1826 applies to Canada. GATT effective May 1, 1950.	Exchange of most-favoured-nation treat- ment. Declaration of Nov. 27, 1911 provides means for separate termina- tion by the Dominions on one years notice.
SWITZERLAND.....	U.K.-Switzerland Treaty of Friendship, Commerce and Reciprocal Establish- ment of Sept. 6, 1855 applies to Canada. By exchange of notes Liechtenstein in- cluded under terms of this Agreement, effective July 14, 1947. Switzerland has acceded to GATT pro- visionally.	Exchange of most-favoured-nation treat- ment. Convention of Mar. 30, 1914 provides means for separate termina- tion by the Dominions on one years notice.
SYRIAN ARAB REPUBLIC.....	Special Arrangement by Order in Council of Nov. 19, 1946.	Canada grants most-favoured-nation tariff rates as long as Syria accords reciprocal treatment.
Togo.....	Franco-Canadian Trade Agreement of 1933 applied to Togo. Togo maintains a <i>de facto</i> application of the GATT.	Since the creation of Togo as an independ- ent state in 1960, Canada has continued to grant most-favoured-nation treat- ment.
TUNISIA.....	Franco-Canadian Trade Agreement of 1933 applied to Tunisia. Tunisia has acceded to GATT provision- ally.	Since the creation of Tunisia as an inde- pendent state in 1956, Canada has con- tinued to grant most-favoured-nation treatment.
TURKEY.....	Exchange of notes signed Mar. 1, 1948; in effect Mar. 15, 1948. GATT effective Oct. 17, 1951.	Exchange of most-favoured-nation treat- ment. May be terminated on three months notice.
UNION OF SOVIET SOCIALIST REPUBLICS.	Trade Agreement signed Feb. 29, 1956, renewed for another three years Apr. 18, 1960 and again for the same period on Sept. 16, 1963 by a protocol which pro- visionally entered into force on the same date (the extension to be valid from Apr. 18, 1963).	Exchange of most-favoured-nation treat- ment and undertaking by U.S.S.R. to purchase a minimum of 6,375,000 long tons of wheat and flour during the three- year period of validity of the extended agreement.

**Tariff and Trade Arrangements with Non-Commonwealth Countries as at
Dec. 31, 1964—concluded**

Country	Agreement	Principal Terms
UNITED ARAB REPUBLIC (EGYPT).	Exchange of notes Nov. 26 and Dec. 3, 1952; in force Dec. 3, 1952. The United Arab Republic has acceded provisionally to the GATT.	Exchange of most-favoured-nation treatment. May be terminated on six months notice.
UNITED STATES.....	Trade Agreement signed Nov. 17, 1938; suspended as long as both countries continue to be contracting parties to GATT. GATT effective Jan. 1, 1948.	Most-favoured-nation treatment exchanged.
UPPER VOLTA.....	Franco-Canadian Trade Agreement of 1933 applies to Upper Volta. GATT effective Aug. 5, 1960.	Exchange of most-favoured-nation treatment.
URUGUAY.....	Trade Agreement signed Aug. 12, 1936; in force May 15, 1940. Additional protocol signed Oct. 19, 1953. GATT effective Dec. 16, 1953.	Most-favoured-nation treatment.
VENEZUELA.....	<i>Modus vivendi</i> signed and brought into force Oct. 11, 1950.	Exchange of most-favoured-nation treatment. Made for one year subject to annual renewal.
VIET-NAM.....	Franco-Canadian Trade Agreement of 1933 applied to Viet-Nam.	Since the creation of Viet-Nam as an independent state in 1955, Canada has continued to accord most-favoured-nation rates.
YUGOSLAVIA.....	Trade Agreements Act of June 11, 1928, accepted Article 30 of U.K.-Serb-Croat-Slovene Treaty of Commerce and Navigation of May 12, 1927; in force Aug. 9, 1928. Yugoslavia has acceded to GATT provisionally.	Exchange of most-favoured-nation treatment. May be terminated on one years notice.

PART IV.—TRAVEL BETWEEN CANADA AND OTHER COUNTRIES*

Canadians have long been enthusiastic travellers and have become very active in contributing to and benefiting from the great expansion in the world travel industry. In 1964, visits of Canadians to other countries numbered almost 32,600,000, of which 32,200,000 were to the United States. The latter was an increase of nearly 9.5 p.c. over the previous year. On the other hand, visits to Canada by residents of the United States increased by only 1.9 p.c. over 1963 but, even so, reached a record 32,500,000. It is also of interest to note the rapid increase in Canadian travel to overseas countries; in 1964, Canadian visits overseas numbered 391,650, an increase of 14.5 p.c. over 1963. The number of overseas visitors coming directly to Canada, also rising year by year, totalled 112,800.

The effect of these increases in the number of visits to and from Canada and the resulting increases in the expenditures involved is of considerable importance to persons in the travel industry and also to those concerned with Canada's balance of payments position. In 1963, for the first time in several years, the Canadian travel account showed a surplus, which amounted to \$24,000,000, largely due to increased Canada-United States travel. In 1964, however, Canadian travel expenditures outside the country, amounting to \$712,000,000, outweighed foreign travel payments to Canada (including those of United

* Prepared by the Travel Statistics Unit, National Accounts and Balance of Payments Division, Dominion Bureau of Statistics.

States visitors) by \$50,000,000. Canada has had a surplus on travel account with the United States since 1962 but the large surplus of \$161,000,000 in 1963 was reduced in 1964 to \$109,000,000. Although still sizable, this surplus was not high enough to counter-balance the deficit in the travel account with other countries; Canadian expenditures for travel to countries other than the United States totalled \$231,000,000 in 1964 compared with receipts from these countries of \$72,000,000.

Travel Between Canada and the United States.—The close ties that exist between Canada and the United States have been strengthened throughout the years by the very great interchange of people across the common border. As would be expected, most of the visits are made by automobile. In 1964, a record 26,371,000 United States travellers entered Canada by car and spent an estimated \$397,600,000, an increase of 10.2 p.c. or \$36,700,000 over the 1963 expenditure for this category. Greater numbers combined with higher average expenditures per person accounted for the increase. Length of stay of travellers is always significant since it has an important bearing on the amount of money spent. For example, 65.5 p.c. of the United States visitors to Canada in 1964 entered and left on the same day yet accounted for only 10.4 p.c. or \$61,400,000 of the total amount spent by United States travellers in Canada. The remaining 89.6 p.c., or \$528,800,000, was spent by travellers staying one or more nights although these comprised only 34.5 p.c. of the total number.

In 1964, a new survey was introduced to gather information on the increasing number of United States pleasure craft entering Canadian waters. It was estimated that 79,250 such craft visited Canada in 1964, 97 p.c. of them in the April–September period. Ontario received 81 p.c. of these entries, Quebec 10 p.c. and British Columbia about 9 p.c. Of the total, almost 61 p.c. entered and left on the same day but there were wide differences in lengths of stay as between provinces. Of those entering Ontario and Quebec, 63 p.c. and 93 p.c., respectively, left on the same day but in British Columbia 98 p.c. stayed one or more nights. The distances between Canadian and United States ports on the West Coast and those on the Great Lakes and St. Lawrence River may explain the different patterns.

Canadian travel to the United States set new records in 1964 in both numbers and expenditures. By that time the restricting influences of the 1962 dollar devaluation and the reduced customs exemption were being countered by such factors as higher incomes, more leisure time, improved transportation facilities and reduced air fares. All categories of travel—automobile, aircraft, bus, train and boat—contributed to the nearly 10-p.c. increase in visits over 1963. Expenditures of automobile travellers rose over 30 p.c. to a total of \$254,100,000, which amount represented 53.4 p.c. of the total spent by Canadian travellers in the United States (excluding Hawaii). It is interesting to note that Canadians usually spend less time in the United States per visit than United States visitors spend in Canada. In 1964, 84 p.c. of the Canadian travellers to the United States entered and left on the same day, compared with 65.5 p.c. of United States visitors to Canada. These short-term Canadian visitors spent 12.1 p.c. of the total Canadian payments to the United States, the remaining 87.9 p.c. being spent by long-term Canadian visitors who comprised only 16 p.c. of the total number.

Canadians travel to the United States for a variety of reasons but recreation accounted for an estimated 46.3 p.c. of the visits in 1964, visits to friends or relatives for 31.9 p.c., business for 10.9 p.c., shopping for 5.3 p.c. and health for 3.6 p.c. Residents of the Atlantic Provinces, who have had the longest association with the United States, account for the highest percentage (45.3) travelling to the United States to visit friends or relatives. Alberta recorded the highest percentage (28.6) of business trips and Saskatchewan the highest percentage (10.0) of shopping trips.

1.—Number and Expenditure of United States Travellers in Canada and Canadian Travellers in the United States, 1955-64

Year	U.S. Travellers in Canada	U.S. Expenditure in Canada	Canadians Travelling in U.S.	Canadian Expenditure in U.S.	Excess of U.S. Travellers in Canada	Balance of Payments with the U.S.
	No.	\$'000	No.	\$'000	No.	\$'000
1955.....	28,283,400	303,000	24,753,800	363,000	+3,529,600	- 60,000
1956.....	27,666,500	309,000	27,076,700	391,000	+ 589,800	- 82,000
1957.....	28,619,400	325,000	27,209,400	403,000	+1,410,000	- 78,000
1958.....	28,530,700	309,000	27,421,700	413,000	+1,109,000	-104,000
1959.....	29,880,800	351,000	27,989,900	448,000	+1,890,900	- 97,000
1960.....	29,654,600	375,000	29,045,800	462,000 ¹	+ 608,800	- 87,000
1961.....	30,474,200	435,000	29,288,500	459,000 ¹	+1,185,700	- 24,000
1962.....	31,656,400	512,000	27,944,600	419,000 ¹	+3,711,800	+ 93,000
1963.....	31,864,800	549,000	29,389,800	388,000 ¹	+2,475,000	+161,000
1964.....	32,463,100	590,000	32,164,100	481,000 ¹	+ 299,000	+109,000

¹ Includes Hawaii.

2.—Number and Expenditure of United States Travellers in Canada and Canadian Travellers in the United States, by Means of Travel and Length of Stay, 1963 and 1964

Year and Item	U.S. Travellers in Canada ¹	U.S. Expenditure in Canada	Canadians Travelling in the U.S. ¹	Canadian Expenditure in the U.S.	Excess of U.S. Travellers in Canada	Excess of U.S. Expenditures in Canada
	No.	\$'000	No.	\$'000	No.	\$'000
1963						
Short-Term (entering and leaving the same day).....	21,498,800	59,830	24,413,300	53,940	-2,914,500	+ 5,890
Automobile.....	16,116,300	32,095	19,191,500	34,838	-3,075,200	- 2,743
Aircraft.....	28,100	774	29,300	2,092	- 1,200	- 1,318
Bus.....	99,400	868	32,700	260	+ 66,700	+ 608
Rail.....	243,600	359	26,400	252	+ 217,200	+ 77
Boat.....	228,600	1,227	35,100	158	+ 193,500	+ 1,069
Other (pedestrians, local bus, etc.).....	4,782,800	24,507	5,098,300	16,310	- 315,500	+ 8,197
Long-Term (remaining one or more nights).....	10,366,000	489,041	4,976,500	329,700	+5,389,500	+159,341
Automobile.....	9,013,900	328,845	3,854,800	160,178	+5,159,100	+168,667
Aircraft.....	459,000	67,725	461,300	97,086	- 2,300	- 29,360
Bus.....	412,800	53,501	367,500	40,536	+ 45,300	+ 12,965
Rail.....	200,900	29,805	213,500	29,614	- 12,600	+ 191
Boat.....	279,400	9,164	79,400	2,286	+ 200,000	+ 6,878
Totals, 1963.....	31,864,800	548,871	29,389,800	383,640²	+2,475,000	+165,231²
1964						
Short-Term (entering and leaving the same day).....	21,274,000	61,363	27,016,000	57,575	-5,742,000	+ 3,788
Automobile.....	16,577,400	35,481	20,764,400	35,777	-4,187,000	- 295
Aircraft.....	34,900	1,100	26,500	1,766	- 8,400	- 666
Bus.....	107,900	709	27,500	219	+ 80,400	+ 490
Rail.....	246,600	373	23,600	187	+ 223,000	+ 186
Boat.....	285,600	1,398	27,300	105	+ 258,300	+ 1,293
Other (pedestrians, local bus, etc.).....	4,021,600	22,302	6,146,700	19,521	-2,125,100	+ 2,781
Long-Term (remaining one or more nights).....	11,189,100	528,785	5,148,100	418,517	+6,041,000	+110,268
Automobile.....	9,793,600	362,187	3,887,300	218,349	+5,906,300	+143,828
Aircraft.....	518,400	81,773	517,900	113,599	- 500	- 31,826
Bus.....	444,400	45,359	422,000	49,810	+ 22,400	- 4,451
Rail.....	226,200	30,521	232,600	33,020	- 6,400	- 2,499
Boat.....	206,500	8,945	88,300	3,739	+ 118,200	+ 5,206
Totals, 1964.....	32,463,100	590,148	32,164,100	476,092	+ 299,000	+114,056

¹ Includes substantial amounts of in-transit, commuting and local traffic.² Excludes Hawaii.

3.—Highway Traffic at Canadian Border Points, 1963 and 1964

Year and Province or Territory	Foreign Vehicles Inward				Canadian Vehicles Returning		
	Entering and Leaving the Same Day	One or More Nights in Canada	Repeats and Taxis	Commercial Vehicles	Leaving and Returning the Same Day	One or More Nights in U.S.	Commercial Vehicles
	No.	No.	No.	No.	No.	No.	No.
1963							
Atlantic Provinces.....	280,159	171,385	1,031,629	62,831	1,907,400	113,293	125,378
Quebec.....	329,126	337,092	174,874	112,416	1,074,882	380,749	164,439
Ontario.....	3,224,274	2,439,526	774,465	214,119	3,338,450	460,495	267,769
Manitoba.....	55,937	56,047	59,274	19,299	170,771	78,765	22,786
Saskatchewan.....	29,255	30,024	15,585	10,356	74,606	25,188	7,230
Alberta.....	15,108	51,017	24,019	13,908	62,976	30,168	8,985
British Columbia.....	189,587	315,944	50,505	62,544	857,138	201,107	27,028
Yukon Territory.....	1,752	20,012	247	2,127	1,481	1,132	602
Totals, 1963.....	4,125,196	3,421,047	2,130,598	497,600	7,487,704	1,290,897	624,217
1964							
Atlantic Provinces.....	301,795	184,764	948,306	57,063	1,947,397	132,386	117,705
Quebec.....	336,977	360,363	162,491	108,058	1,211,561	434,340	177,080
Ontario.....	3,371,730	2,683,576	841,482	211,896	3,600,788	519,646	316,021
Manitoba.....	56,069	60,196	60,749	16,407	163,144	75,025	21,032
Saskatchewan.....	30,079	30,966	17,630	11,514	82,387	27,971	7,714
Alberta.....	14,723	48,550	19,942	9,522	53,295	27,694	6,049
British Columbia.....	213,879	349,389	54,493	67,014	906,150	210,624	25,575
Yukon Territory.....	2,090	21,359	374	4,015	1,392	1,047	420
Totals, 1964.....	4,327,342	3,739,163	2,105,467	485,489	7,966,114	1,425,733	671,596

Travel Between Canada and Overseas Countries.—Canadian residents going overseas in 1964 numbered 391,650, almost 15 p.c. higher than in 1963; of the total, 322,650 went directly from Canada and 69,000 travelled via the United States. Gross travel expenditures in countries other than the United States totalled \$320,000,000, of which \$155,000,000 was spent for oceanic transportation; the airlines received 90 p.c. of the overseas transportation costs by Canadians returning direct to Canada.

From replies to questionnaires by Canadians going directly overseas, the following major destinations were estimated: Britain, 81,000; France, 74,000; Germany, 60,000; Switzerland, 48,000; the Netherlands, 46,000; Italy, 45,000; the West Indies, the Bahamas and Bermuda, 38,000; and Mexico, 17,000. These figures represent visits to the various countries and it is quite usual for one person to visit several countries on the same trip. Average lengths of stay were indicated as: Britain, 32 days; Continental Europe, 38-39 days; Britain and Continental Europe (combined), 41 days; Bermuda, 14 days; the West Indies, 18 days; Mexico, 19 days; and Hawaii, 20 days. Boat travellers generally have more holiday time than air travellers and their length of stay abroad is usually longer. The average length of stay for those going by boat for combined visits to Britain and Continental Europe was 70 days and that for similar trips by air averaged 37-38 days.

Because of the heavy postwar immigration to Canada, it is natural that a high proportion of persons travelling overseas should be going to visit relatives and friends. In 1964, persons travelling overseas for that reason made up between 43 and 44 p.c. of the total; the proportions going to Britain and Continental Europe for that reason were 71 p.c. and 63 p.c., respectively. Recreation was the main purpose of 79 p.c. of the visits to other Commonwealth areas (including the West Indies, the Bahamas and Bermuda). As would be expected, the greatest number of Canadians travelling to overseas countries were from

the provinces with the largest populations and the highest incomes—about 43 p.c. resided in Ontario, 27 p.c. in Quebec and 13 p.c. in British Columbia. Comparing direct and indirect travel, the greatest difference, aside from the number of persons in each category, was in the purpose of trip reported; recreation was the main purpose of 61 p.c. of the travellers going overseas via the United States and 45 p.c. of those doing direct.

Travel to Canada from overseas has also been increasing. In 1964 about 112,800 overseas visitors came to Canada and spent an estimated \$72,000,000, an increase of \$12,000,000 over the amount spent by such visitors in 1963. Visitors from Britain spent \$33,000,000 or 45.8 p.c. of the total and those from other sterling areas, \$11,000,000 or 15.3 p.c.; from other European countries, \$17,000,000 or 23.6 p.c.; and from other areas, \$11,000,000 or 15.3 p.c. During the year, 50,700 visitors arrived directly from Britain, representing 45 p.c. of the total non-immigrant entries from overseas countries; those from other Commonwealth countries numbered 8,870 or 8 p.c.; from other European countries, 37,400 or 33 p.c.; and from other areas, 15,800 or 14 p.c. Far more overseas visitors travelled by air than by ship. In 1964, 98,100 persons, or 87 p.c. of the direct entries, arrived by aircraft at Canadian international airports and 13,500 persons arrived by ship.

Based on questionnaire replies by overseas visitors to Canada in 1964, residents of Britain remained in Canada 33-34 days on the average, those from other European countries 34 days, those from other Commonwealth countries about 26 days and those from all other areas 15-16 days. During 1964, 66.5 p.c. of all travellers from overseas came to Canada to visit friends and relatives compared with 72.5 p.c. in 1963, 17.8 p.c. reported business as their main purpose compared with 15.1 p.c. in 1963, and those who came for recreational purposes made up 13.3 p.c. of the total compared with 10.7 p.c. in the previous year. Purpose of trip showed considerable variation according to area of residence. Almost 76 p.c. of the visitors from Britain came to visit friends or relatives but the proportion of arrivals from other countries for this purpose was only 42.5 p.c. The percentage of travel for business reasons ranged from close to 14 p.c. of the visitors from Britain to between 25 and 26 p.c. of those from other European countries. Recreation was reported by only 8.7 p.c. of the travellers from Britain but by more than 33 p.c. of those from other countries.

CHAPTER XXIII.—PUBLIC FINANCE*

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

Combined statistics of public finance for all governments in Canada—federal, provincial and municipal—are presented in Section 1 of this Chapter and Section 2 covers the incidence of taxation at the three levels. More detailed information for each level of government is given in Sections 3, 5 and 6. Section 4 gives information on the rapidly growing list of joint federal-provincial programs and on the extent of federal financial participation in such programs.

Section 1.—Combined Statistics of Public Finance for All Governments

Combined Revenue and Expenditure.—Tables 1 and 2 give details of the federal, provincial and municipal net combined revenue by source and net combined current and capital expenditure by function, respectively, for 1961 and 1962. This net basis has been prepared by deducting from revenue, and from the appropriate expenditure, certain specified amounts such as grants-in-aid and shared-cost contributions from other governments, institutional revenue, and interest, premium, discount and exchange revenue. Amounts provided for debt retirement are excluded to avoid duplication since all expenditure resulting from capital borrowings is included.

Inter-government transfers such as subsidy payments by the Federal Government to the provincial governments are unconditional grants and therefore cannot be offset against any specific expenditure. These are set out separately in Tables 1 and 2 in order to prevent duplication and to provide additive totals. Because of the differing accounting practices of governments and variations in fiscal year-ends, discrepancies appear between the amounts recorded as inter-government transfers in the two tables.

* Except as otherwise indicated, revised in the Public Finance and Transportation Division, Dominion Bureau of Statistics.

1.—Combined Revenue of All Governments, 1961 and 1962

NOTE.—Figures are for fiscal years ended nearest Dec. 31.

Source of Revenue	1961				1962			
	Federal	Provincial	Municipal	Total	Federal	Provincial	Municipal	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Taxes—								
Income—								
Corporation.....	1,302,179	267,684	—	1,569,863	1,298,087	395,340	—	1,693,427
Individual.....	2,051,606	85,080	—	2,136,686	2,018,276	359,921	—	2,378,197
Interest, dividends and other income going abroad.....	112,306	—	—	112,306	129,137	—	—	129,137
General sales.....	1,044,557	354,930	85,388	1,484,875	1,108,210	515,604	42,292	1,666,106
Motor fuel and fuel oil sales.....	—	449,548	451	449,999	—	483,669	635	484,304
Other sales.....	—	61,143	2,830	63,973	—	65,453	3,242	68,695
Excise duties and special excise taxes.....	623,636	—	—	623,636	641,256	—	—	641,256
Customs import duties.....	534,516	—	—	534,516	644,992	—	—	644,992
Real and personal property.....	—	8,723	1,391,064	1,399,787	—	9,001	1,529,993	1,538,994
Business.....	—	—	45,463 ¹	45,463	—	—	48,106 ¹	48,106
Estate taxes and succession duties.....	84,579	65,871	—	150,450	87,143	72,014	—	159,157
Other.....	1,043	188,907 ²	15,061	205,011	491	186,569 ²	14,407	201,467
Totals, Taxes.....	5,754,422	1,481,886	1,540,257	8,776,565	5,927,592	2,087,571	1,638,675	9,653,838
Privileges, Licences and Permits—								
Liquor control and regulation....	11	50,974	—	50,985	11	53,062	—	53,073
Motor vehicle.....	—	181,885	—	181,885	—	186,829	—	186,829
Natural resources.....	3,805	296,467	—	300,272	3,928	315,552	—	319,480
Other.....	20,574	31,704	27,910	80,188	22,537	33,862	29,208	85,607
Totals, Privileges, Licences and Permits.....	24,390	561,030	27,910	613,330	26,476	589,305	29,208	644,989
Sales and services.....	64,000	50,347	—	114,347	62,617	56,242	—	118,859
Receipts from Government Enterprises—								
Liquor boards and commissions.....	—	196,950	—	196,950	—	216,816	—	216,816
Other.....	122,427	6,836	25,710	154,973	107,084	8,318	27,094	142,496
In lieu of municipal taxes from federal and provincial government enterprises.....	—	—	11,394	11,394	—	—	20,524	20,524
Totals, Receipts from Government Enterprises.....	122,427	203,786	37,104	363,317	107,084	225,134	47,618	379,836
Other revenue.....	265,642	13,619	112,805	392,066	280,484	13,751	128,695	422,930
Non-revenue and surplus receipts...	18,477	3,991	—	22,468	22,751	4,885	—	27,636
Totals, Net General Revenue excluding Inter-government Transfers.....	6,249,358	2,314,659	1,718,076	10,282,093	6,427,004	2,976,888	1,844,196	11,248,088
Inter-government Transfers—								
Fiscal and tax-sharing arrangements.....	—	479,270	—	479,270	—	202,249	—	202,249
Share of income tax on power utilities.....	—	6,276	—	6,276	—	10,207	—	10,207
Subsidies.....	—	56,555	71,288	127,843	—	66,470	78,743	145,213
Special payments.....	—	—	1,632	1,632	—	—	1,642	1,642
Grants in lieu of municipal taxes on federal and provincial property.....	—	—	32,935	32,935	—	—	29,423	29,423
Grand Totals, Net General Revenue.....	6,249,358	2,856,760	1,823,931	10,930,049	6,427,004	3,255,814	1,951,004	11,636,822

¹ Incomplete; not separable from real property taxes in some provinces. premiums amounting to \$121,812 in 1961 and \$119,425 in 1962.² Includes hospital insurance

2. —Combined Expenditure of All Governments, 1961 and 1962

NOTE.—Figures are for fiscal years ended nearest Dec. 31.

Function	1961				1962			
	Federal	Provincial	Municipal	Total	Federal	Provincial	Municipal	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Defence services and mutual aid...	1,647,055	—	—	1,647,055	1,594,645	—	—	1,594,645
Veterans pensions and other benefits.....	337,318	—	—	337,318	337,761	—	—	337,761
Health, hospital care and other....	365,906	600,209	65,949	1,032,064	425,376	655,129	72,745	1,153,250
Social Welfare—								
Aid to aged persons.....	656,065 ¹	65,350	*	721,415	772,732 ¹	74,750	1,697	849,179
Aid to unemployed and unemployedables.....	108,478	91,260	*	199,738	96,477	115,352	12,464	224,293
Family allowances.....	523,917	—	—	523,917	534,634	—	—	534,634
National employment services....	102,964	—	—	102,964	106,387	—	—	106,387
Other.....	32,499	118,685	41,893	193,077	54,813	101,555	32,827	189,195
Education.....	93,569	840,739	886,063 ²	1,820,371	274,934	987,776	877,811 ⁴	2,140,521
Transportation and Communications—								
Highways, roads and bridges....	88,557	653,976	345,561	1,088,094	74,131	704,679	379,852	1,158,662
Other.....	341,724	5,168	—	346,892	360,473	6,206	—	366,679
Natural resources and primary industries.....	403,323	201,565	—	604,888	357,095	192,188	—	549,283
Debt charges excluding debt retirement.....	689,449	83,941	106,125 ⁴	879,515	754,940	102,733	177,482 ³	1,035,155
Payments to own government enterprises.....	170,931	5,110	18,290	194,331	155,301	5,605	23,448	184,354
General government.....	287,117	134,896	149,397	571,410	289,540	142,033	168,579	600,152
Protection of persons and property.....	88,121	140,971	257,752	486,844	95,407	158,290	282,822	536,519
Sanitation and waste removal.....	—	—	178,858	178,858	—	—	177,700	177,700
International co-operation and assistance.....	67,396	—	—	67,396	56,892	—	—	56,892
Other.....	449,004	87,983	219,704	756,691	482,075	98,103	278,010	858,188
Non-expense and surplus payments.	293	6,923	—	7,216	34,426	13,405	—	47,831
Totals, Net General Expenditure excluding Inter-government Transfers.....	6,453,686	3,036,776	2,269,592	11,760,054	6,858,039	3,357,804	2,485,437	12,701,280
Inter-government Transfers—								
Fiscal and tax-sharing arrangements.....	479,269	—	—	479,269	202,295	—	—	202,295
Share of income tax on power utilities.....	6,396	—	—	6,396	10,000	—	—	10,000
Subsidies.....	56,556	69,884	—	126,440	66,471	74,104	—	140,575
Special payments.....	—	1,682	—	1,682	1,642	—	—	1,642
Grants in lieu of municipal taxes on federal and provincial property.....	25,034	1,617	—	26,651	29,947	3,522	—	33,469
Grand Totals, Net General Expenditure.....	7,020,941	3,109,959	2,269,592	12,400,492	7,168,394	3,435,430	2,485,437	13,089,261

¹ Includes pensions paid from Old Age Security Fund.
² Includes interest on debentures issued for school purposes.

³ Included in "Other" social welfare.

⁴ Excludes interest on debentures issued for school purposes.

Consolidated Debt.—Table 3 gives details of combined debt of all governments for 1961 and 1962 with the aggregate debt of the federal, provincial and municipal governments; the inter-government debt is deducted to arrive at a consolidated government figure.

3.—Consolidated Debt of All Governments, 1961 and 1962

NOTE.—Figures are for fiscal years ended nearest Dec. 31.

Item	1961					1962						
	Federal	Pro- vincial	Munici- pal	Total	Deduct Inter- gov- ern- ment Debt	Consoli- dated Gov- ern- ment Debt	Federal	Pro- vincial	Munici- pal	Total	Deduct Inter- gov- ern- ment Debt	Consoli- dated Gov- ern- ment Debt
Direct Debt—												
Funded debt.....	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Less sinking funds.....	15,060,736	4,111,231	4,734,023	23,905,990	185,377	23,720,613	15,796,836	4,410,573	5,076,334	25,283,743	174,048	25,109,695
	19,432	646,429	167,165	833,026	—	833,026	22,312	688,200	190,148	900,660	—	900,660
Net funded debt.....	15,041,304	3,464,802	4,566,858	23,072,964	185,377	22,887,587	15,774,524	3,722,373	4,886,186	24,383,083	174,048	24,209,035
Treasury bills ²	1,885,000	68,062	—	1,953,062	—	1,953,062	2,165,000	63,085	—	2,228,085	—	2,228,085
Savings deposits.....	27,365	27,365	—	27,365	—	27,365	25,880	3	—	25,880	—	25,880
Temporary loans.....	—	20,103	277,457	297,560	—	297,560	—	39,608	250,761	290,369	—	290,369
Other direct liabilities.....	5,698,745	511,924	411,501	6,622,170	100,381	6,521,789	6,608,290	672,636	507,118	7,788,044	209,505	7,578,539
Totals, Direct Debt (less sinking funds).....	22,652,414	4,064,891	5,255,816	31,973,121	285,758	31,687,363	24,573,694	4,497,702	5,644,065	34,715,461	383,553	34,331,908
Indirect Debt—												
Guaranteed bonds.....	1,636,115	4,259,455	12,924	5,908,494	445,819	5,462,675	1,381,361	4,647,494	12,317	6,041,172	505,425	5,535,747
Less sinking funds.....	—	114,159	297	114,456	3,216	111,240	—	137,557	333	137,890	5,087	132,803
Net guaranteed bonds.....	1,636,115	4,145,296	12,627	5,794,038	442,603	5,351,435	1,381,361	4,509,937	11,984	5,903,282	500,338	5,402,944
Loans under the Municipal Improvement Assistance Act, 1938.....	—	1,466	—	1,466	1,466	—	—	1,294	—	1,294	1,294	—
Guaranteed bank loans and other indirect liabilities.....	4,111,540 ⁴	175,184	86	4,286,810	4,255	4,282,555	4,610,975 ⁴	168,830	11	4,779,816	4,967	4,774,849
Totals, Indirect Debt (less sinking funds).....	5,747,655	4,321,946	12,713	10,082,314	448,324	9,633,990	5,992,336	4,680,061	11,995	10,684,392	506,599	10,177,793
Grand Totals.....	28,400,069	8,386,837	5,268,529	42,055,435	734,082	41,321,353	30,566,030	9,177,763	5,656,060	45,399,853	890,152	44,509,701

¹ Includes treasury bills having a term of two or more years.² Includes treasury bills having a term of less than two years.³ Included in "Other direct liabilities".⁴ Excludes contingent liability in respect of Federal Government guarantee of deposits maintained by chartered banks in the Bank of Canada and miscellaneous guarantees, the amounts of which were not finally determined or were indeterminate at the close of the fiscal year.

Section 2.—Taxation in Canada*

Canada is a federal state with a central government and ten provincial governments. In 1867 the principal colonies of the British Crown in North America joined together to form the nucleus of a new nation and the British North America Act of that year became its written constitution. This statute created a central government with certain powers while continuing the existence of political subdivisions called provinces with powers of their own.

Under the British North America Act the Parliament of Canada has the right to raise "money by any mode or system of taxation" while the provincial legislatures are restricted to "direct taxation within the province in order to the raising of a revenue for provincial purposes". Thus the provinces have a right to share only in the field of direct taxation while the Federal Government is not restricted in any way in matters of taxation. The British North America Act also empowers the provincial legislatures to make laws regarding "municipal institutions in the province". This means that the municipalities derive their incorporation with its associated powers, fiscal and otherwise, from the provincial government concerned. Thus, from a practical standpoint, municipalities are also limited to direct taxation.

A direct tax is generally recognized as one "which is demanded from the very person who it is intended or desired should pay it". In essence, this conception has limited the provincial governments to the imposition of income tax, retail sales tax, succession duties and an assortment of other direct levies. In turn, municipalities, acting under the guidance of provincial legislation, tax real estate, water consumption and places of business. The Federal Government levies direct taxes on income, on gifts and on the estates of deceased persons, and indirect taxes such as excise taxes, excise and customs duties, and a sales tax.

The increasing use by both the federal and the provincial governments of their rights in the field of direct taxation in the 1930's resulted in uneconomic duplication and some severe tax levies. Starting in 1941, a series of tax agreements were concluded between the federal and the provincial governments to promote the orderly imposition of direct taxes. The duration of each agreement was normally five years. Under the earlier agreements, the participating provinces undertook, in return for compensation, not to use or permit their municipalities to use certain of the direct taxes. Under the present arrangements, the federal income tax otherwise payable in all provinces and the estate tax otherwise payable in three provinces are abated by certain percentages to make room for provincial levies.

The current arrangement became operative on Apr. 1, 1962 and will run until Mar. 31, 1967. Under this arrangement there is a partial federal withdrawal from the field of direct taxation and a re-entry of all provinces into the vacated area. The federal personal income tax otherwise payable on income earned in a province and on income received by a resident of a province is reduced by the following percentages: 16 p.c. in 1962; 17 p.c. in 1963; 18 p.c. in 1964; 21 p.c. in 1965;† and 24 p.c. in 1966.† In 1965 and 1966, the federal tax abatements for income earned in Quebec or received by a resident of Quebec will be 44 p.c. and 47 p.c., respectively. The additional relief in the case of Quebec is to allow that province to collect revenue to pay for certain programs that are paid for in whole or in part by the Federal Government in other provinces. The Federal Government also reduces its rate of corporation income tax on taxable income of corporations earned in the provinces. The reduction is 9 p.c. of taxable income earned in any province except Quebec and 10 p.c. in Quebec; the additional 1 p.c. reduction in Quebec is to compensate for the additional tax levied by the province on corporation income to provide grants to universities. These provincial grants replace federal grants which in other provinces are paid to the universities by the Federal Government through the Canadian Universities

* Revised (August 1965) in the Taxation Division, Department of Finance, under the direction of F. R. Irwin, Director of the Division, and by the provincial authorities concerned.

† The original agreement provided for abatements of 19 p.c. in 1965 and 20 p.c. in 1966. However, following a federal-provincial conference in April 1964, the provinces were granted an additional two percentage points in 1965 and four percentage points in 1966.

Foundation. Finally, the Federal Government abates the federal estate tax otherwise payable by 75 p.c. in respect of property situated in a province which levies its own death tax. Only Ontario, Quebec and British Columbia at present levy death taxes in the form of succession duties.*

These reductions in federal income tax and estate tax under the terms of the 1962-67 fiscal arrangements do not apply to the Yukon Territory or the Northwest Territories or to income earned outside Canada. The Yukon and Northwest Territories do not impose income taxes or death taxes.

The provincial tax rates are not restricted to the extent of the federal withdrawal. The constitutional position of the provinces permits them unlimited use of direct taxes for the raising of revenue for provincial purposes. However, in all but four provinces (Ontario, Quebec, Manitoba and Saskatchewan) the provincial rates of income tax coincide with the amount of the federal abatement.

As part of the 1962-67 fiscal arrangements, the Federal Government has entered into tax collection agreements under which it collects the provincial personal income taxes for all provinces except Quebec and the provincial corporation income taxes for all provinces except Ontario and Quebec.

Subsection 1.—Federal Taxes

Individual Income Tax

Every individual who is resident in Canada at any time during a year is liable for the payment of income tax for that year. Every non-resident individual who is employed or carries on business in Canada during a year is required to pay tax on the part of his income earned in Canada. The term "residence" is difficult to define simply but, generally speaking, it is taken to be the place where a person resides or where he maintains a dwelling ready at all times for his use. There are also extensions of the meaning of Canadian resident to include a person who has sojourned in Canada for an aggregate period of 183 days in a taxation year, or a person who was during the year a member of the Armed Forces of Canada, or an ambassador, a high commissioner, or an officer or servant of Canada or of any one of its provinces, or the spouse or dependent child of any such person. Canadian taxation practice is based to a large extent on the British experience. This is reflected particularly in the fact that taxation is on the basis of residence rather than citizenship, and in the freedom from tax on capital gains.

The Canadian tax law uses the concepts "income" and "taxable income". The income of a resident of Canada for a taxation year comprises his revenues from all sources inside or outside Canada and includes income for the year from all businesses, property, offices and employments. It does not include capital gains unless they arise out of the conduct of a business or as a result of an adventure in the nature of trade.

In computing his income for a taxation year, an individual must include all dividends, fees, annuities, pension benefits, allowances, interest, alimony, maintenance payments and other miscellaneous sources of income. On the other hand, war service disability pensions paid by Canada or an ally of Her Majesty at the time of the war service, unemployment insurance benefits, compensation in respect of an injury or death paid under a Workmen's Compensation Act of a province and family allowances do not have to be included in the computation of income.

In computing his income, an individual who is carrying on business may deduct business expenses including depreciation (called capital cost allowances), interest on borrowed money, reserves for doubtful debts, contributions to pension plans or deferred profit-sharing

* The original agreement was for a 50-p.c. abatement. However, at the conclusion of a federal-provincial conference in late 1963, it was increased to 75 p.c. in respect of deaths occurring after Mar. 31, 1964. Currently, only the estates of domiciliaries of British Columbia qualify for the full 75 p.c. abatement. Quebec and Ontario estates are temporarily eligible for only 50 p.c. because these two provinces have decided for the time being to take a payment from the Federal Government on account of the additional 25-p.c. abatement rather than to increase their succession duty rates.

plans for his employees, bad debts, and expenses incurred for scientific research. In general, no deductions are allowed in computing income from salary and wages, although there are exceptions such as travelling expenses of employees who have to travel as they perform their work, union dues, alimony payments and contributions to registered pension plans. Individuals may deduct, within limits, amounts set aside to provide a future income under registered retirement savings plans. Students attending universities, colleges, high schools, public schools or certain other certified educational institutions in Canada may deduct their tuition fees if they exceed \$25 per annum. Students in full-time attendance at universities outside Canada may deduct their tuition fees.

Having computed his income, the individual then calculates his taxable income by deducting certain exemptions and deductions. These exemptions and deductions are as follows: for single status, \$1,000; for married status \$2,000; for dependent children eligible to receive family allowance,* \$300 per child; for other dependants (as defined in the law), \$550 per dependant; where the taxpayer is over 65 years of age, an additional \$500;† where the taxpayer is blind or confined for the whole of the taxation year to a bed or a wheelchair, an additional \$500; charitable donations, up to 10 p.c. of income; and medical expenses, in excess of 3 p.c. of income. In lieu of claiming deductions for charitable donations and medical expenses an individual may claim a standard deduction of \$100.

As already stated, an individual who is resident in Canada for the whole year is taxed on his income from both inside and outside Canada. An individual who is not resident in Canada at any time during the year but who carries on business in Canada or who earns salary or wages in Canada is taxed only on the income earned in Canada. In computing taxable income earned in Canada, such a non-resident individual is allowed to deduct that part of the exemptions and deductions that may reasonably be attributed to the income earned in Canada. (A non-resident who derives investment income from Canada is taxed in a different way described on p. 969.) An individual who ceases to be a resident of Canada during the year or who becomes a resident during the year so that he is resident for only part of the year will be subject to income tax in Canada on only that part of his income for the year received while he is resident in Canada. In these circumstances, the deductions from income permitted for determining taxable income will be the amount that may reasonably be considered as applicable to the period during which he is resident in Canada.

A progressive schedule of rates is applied to taxable income, beginning at 11 p.c. on the first \$1,000 of taxable income and increasing to 80 p.c. on taxable income in excess of \$400,000. In addition, an old age security tax is levied on taxable income at the rate of 4 p.c. with a maximum of \$120 reached at the level of \$3,000.

After calculating income tax using this progressive schedule of rates, an individual is allowed a deduction from his tax under four main headings. (1) *Dividend Tax Credit*—to partially eliminate the double taxation of corporate profits and to encourage participation in the ownership of Canadian companies, Canadian resident individuals are allowed to deduct from their tax an amount equal to 20 p.c. of the net dividends they receive from Canadian taxable companies. (2) *Foreign Tax Credit*—foreign taxes paid on income from foreign sources may be credited against Canadian income tax but the credit may not exceed the proportion of Canadian tax relative to such income. (3) *Abatement under Federal-Provincial Fiscal Arrangements*—in 1965 the federal personal income tax otherwise payable on income of a resident of a province and on income earned in a province is reduced by 21 p.c.; this abatement will increase to 24 p.c. in 1966.‡ (4) *General Tax Reduction*—in 1965 all individuals may deduct from their tax an amount equal to the lesser

* Family allowances are monthly welfare payments by the Federal Government to the parents or guardians of children under 16 years of age. The allowance is \$6 for each child under 10 years of age and \$8 for each child between the ages of 10 and 16. These allowances are not subject to income tax. Payments are also made in respect of children between the ages of 16 and 18 in full-time attendance at educational institutions; such payments of \$10 a month are called youth allowances. The right to deduct \$550 for a dependent child is not affected by the receipt of these youth allowances.

† For 1966 and subsequent taxation years this special deduction will not be granted to taxpayers under 70 years of age who receive an old age security pension.

‡ Except in the case of income earned in Quebec or received by a resident of Quebec where it is 44 p.c. in 1965 and will be 47 p.c. in 1966 (see p. 964).

of 5 p.c. of their basic tax or \$300. In 1966 and subsequent taxation years this deduction will be the lesser of 10 p.c. of basic tax or \$600. "Basic tax" is personal income tax, excluding the old age security tax, after deduction of the dividend tax credit but before the abatement under the Federal-Provincial Fiscal Arrangements.

To a very large extent, individual income tax is payable as the income is earned. Taxpayers in receipt of salary or wages have tax deducted from their pay by their employer and in this way pay nearly 100 p.c. of their tax liability during the calendar year. The balance of the tax, if any, is payable at the time of filing the tax return before Apr. 30 in the following year. Persons with more than 25 p.c. of their income from sources other than salary or wages must pay tax by quarterly instalments throughout the year and returns must be filed before Apr. 30 in the following calendar year.

The following statement shows what taxpayers pay at various levels of income. In calculating these taxes it has been assumed that all taxpayers take the standard deduction of \$100 and no allowance has been made for the 20-p.c. dividend tax credit.

<u>Status</u>	<u>Income</u>	<u>Income Tax</u>	<u>Old Age Security Tax</u>
	\$	\$	\$
Single taxpayer—no dependants.....	1,200	10	4
	1,500	42	16
	2,000	94	36
	2,500	158	56
	3,000	224	76
	5,000	561	120
	10,000	1,748	120
	20,000	5,534	120
	50,000	20,665	120
	100,000	50,555	120
Married taxpayer—no dependants.....	2,200	10	4
	2,500	42	16
	3,000	94	36
	5,000	383	116
	10,000	1,467	120
	20,000	5,106	120
	50,000	20,115	120
	100,000	49,905	120
Married taxpayer—two children eligible for family allowances.....	2,800	10	4
	3,000	31	12
	5,000	286	92
	10,000	1,319	120
	20,000	4,850	120
	50,000	19,785	120
	100,000	49,515	120

The income taxes shown above are the combined federal and provincial taxes in all provinces where the provincial tax is the same as the federal abatement (i.e., in all provinces except Quebec, Manitoba and Saskatchewan). In Quebec the provincial tax approximates the federal abatement; in Manitoba the provincial tax exceeds the abatement by 5 percentage points and in Saskatchewan by 6 percentage points.

Exemption from Tax.—The income from a new manufacturing or processing business established in certain designated areas of slower growth by an individual or corporation during the period commencing on Dec. 5, 1963 and terminating on Mar. 31, 1967 is eligible for a three-year exemption from income tax.

Corporation Income Tax

The Income Tax Act levies a tax upon the income from everywhere in the world of corporations resident in Canada and upon the income attributable to operations in Canada of non-resident corporations carrying on business in Canada. In computing their income, corporations may deduct operating expenses including municipal real estate taxes, reserves for doubtful debts, bad debts, and interest on borrowed money. They may not deduct provincial income taxes other than provincial taxes on income derived from mining operations. (For this purpose "income from mining operations" is specially defined.)

Regulations covering capital cost allowances (depreciation) permit taxpayers to deduct over a period of years the actual cost of all depreciable property. The yearly deductions of normal capital cost allowances are computed on the diminishing balance principle. (Taxpayers engaged in farming and fishing may choose between this and the straight-line method.) Published regulations establish a number of classes of property and maximum rates. There is provision for recapture of any amount allowed in excess of the ultimate net capital cost of any asset.

Accelerated depreciation is available to taxpayers in certain circumstances and for a limited period of time. Straight-line depreciation at a rate not exceeding 50 p.c. is granted in respect of new machinery and equipment that would otherwise fall in Class 8 of the Income Tax Regulations acquired in the period June 14, 1963 to Dec. 31, 1966 for use in manufacturing or processing businesses by individuals resident in Canada or by companies resident in Canada that have a degree of Canadian ownership. A company that has a degree of Canadian ownership is one which throughout the 60-day period immediately preceding the year in question complies with the following conditions: (1) it was resident in Canada; (2) not less than 25 p.c. of its directors were residents of Canada; and (3) either (a) not less than 25 p.c. of its shares having full voting rights and shares representing not less than 25 p.c. of its equity share capital were owned by individuals resident in Canada or corporations controlled in Canada, or (b) a class or classes of its shares having full voting rights were listed on a Canadian stock exchange and no one non-resident person and no one corporation that did not comply with (a) above owned more than 75 p.c. of the shares having full voting rights, and equity shares of the corporation representing not less than 50 p.c. of the paid-up capital of the corporation were listed on a Canadian stock exchange and no one non-resident person or no one corporation that did not comply with (a) above owned equity shares representing more than 75 p.c. of its equity share capital. For new manufacturing or processing businesses in designated areas of slower growth there is no requirement that they have a degree of Canadian ownership to qualify for this 50-p.c. straight-line depreciation. Moreover, the period during which their expenditures on eligible assets qualify for this accelerated write-off extends from Dec. 5, 1963 to Mar. 31, 1967. Depreciation at the accelerated rate of 20 p.c. on a straight-line basis is also available in respect of new buildings acquired in designated areas of slower growth in the period commencing on Dec. 5, 1963 and ending on Mar. 31, 1967. Finally, accelerated depreciation is allowed in respect of new buildings or other structures for grain storage acquired in the period May 1, 1965 to Dec. 31, 1966 (full write-off in four years) and in respect of property acquired in the period Apr. 27, 1965 to Dec. 31, 1966 to prevent water pollution (full write-off in two years).

Expenditures on scientific research by corporations qualify for special tax treatment. Generally speaking, all expenditures on scientific research related to the business of the taxpayer may be written off for tax purposes in the year when incurred. In addition, corporations are permitted to deduct, in computing income for tax purposes, 150 p.c. of their increased expenditures on scientific research in Canada. This concession is available until the end of the 1966 taxation year.

Taxpayers operating mines, oil wells and gas wells are allowed a depletion allowance, usually computed as a percentage of profits derived from mineral, oil or gas production, which continues as long as the mine or well is in operation. This allowance is in addition to capital cost allowances on buildings, machinery and similar depreciable assets used by the taxpayer and the deduction of his exploration and drilling expenses. Taxpayers operating timber limits receive an annual allowance sometimes called a depletion allowance. This is a rateable proportion of the amount invested in the limit and is based on the amount of timber cut in the year. When the amount invested in the limit has been recovered, no further allowance is given.

In computing taxable income, corporations may deduct dividends received from other Canadian taxpaying corporations and also from foreign corporations in which the Canadian corporation has at least 25 p.c. stock ownership. Business losses may be carried back one

year or forward five years and deducted in computing taxable income. Corporations may also deduct donations to charitable organizations up to a maximum of 10 p.c. of their income.

The general rates of tax on corporate taxable income are 18 p.c. on the first \$35,000 of taxable income and 47 p.c. on taxable income in excess of \$35,000. Corporations deriving more than one half of their gross revenue from the sale of electric energy, gas or steam pay tax on their taxable income from such sources at the rate of 18 p.c. on the first \$35,000 of taxable income plus 45 p.c. on taxable income in excess of \$35,000. Corporations that qualify as investment companies pay a tax of 18 p.c. on their taxable income. In addition to these rates, all corporations pay an old age security tax of 3 p.c. of taxable income, bringing their rates up to 21 p.c. and 50 p.c. (21 p.c. and 48 p.c. for the public utility companies and 21 p.c. for investment companies).

In calculating the amount of their income tax, corporations are allowed a deduction from tax under three headings. (1) *Foreign Tax Credit*—foreign taxes paid on income from foreign sources may be credited against Canadian income tax but the credit may not exceed the proportion of Canadian tax relative to such income. (2) *Abatement under Federal-Provincial Fiscal Arrangements*—corporations may deduct from their federal tax otherwise payable a tax abatement equal to a fixed percentage of their taxable income attributable to operations in a Canadian province. This abatement is to make room for the provincial income tax levied by each Canadian province. The amount of the abatement is 9 p.c. of taxable income attributable to operations in any province except Quebec and 10 p.c. of taxable income attributable to operations in Quebec. (3) *Provincial Logging Tax*—corporations may deduct from their federal tax otherwise payable an amount equal to two thirds of a provincial tax on income from logging operations not exceeding two thirds of 10 p.c. of the corporation's income from logging operations in the province. (At present only Ontario, Quebec and British Columbia impose logging taxes—see p. 976.)

Income from manufacturing and processing businesses established in certain designated areas of slower growth during the period commencing Dec. 5, 1963 and terminating Mar. 31, 1967 is eligible for a three-year exemption from income tax.

Corporations are required to pay their tax (combined income and old age security tax) in monthly instalments but the period during which they pay tax for a taxation year does not coincide with that taxation year. Until 1963, corporations started to pay tax for a taxation year in the seventh month of that year. In each of the last six months of their taxation year and in the following three, they paid one twelfth of their estimated tax for the year and in each of the following two months they paid one third of the estimated balance. In the sixth month following the end of their taxation year, the final return had to be filed and the remainder of the tax paid for the year. In 1963, a new set of rules was introduced for the payment of corporation income tax, which will become fully operative in early 1966. These rules require that corporations begin to pay their tax for a taxation year in the fifth month of that year. In each of the last eight months of their taxation year and in the following two, they pay one twelfth of their estimated tax for the year and in each of the following two months, they pay one half of the estimated balance. In the sixth month following the end of their taxation year, the final return must be filed.

Taxation of Non-residents

A non-resident is liable for payment of income tax if he was employed or was carrying on business in Canada during a taxation year. The expression "carrying on business in Canada" includes (1) maintaining a permanent establishment in Canada, (2) processing goods even partially in Canada, and (3) entering into contracts in Canada. The taxable income of a non-resident individual thus derived is taxed under the same schedule of rates as Canadian resident individuals, and non-resident corporations deriving income from carrying on business in Canada are taxed on their taxable income attributable to operations in Canada at the same rates as Canadian resident corporations. (Tax treaties with some countries provide certain exemptions from tax for remuneration for services performed in Canada by residents or employees of these countries.)

Furthermore, a tax of 15 p.c. is applied on certain forms of income going from Canada to non-resident individuals or corporations, such as interest, dividends, rentals, royalties, income from a trust or estate and alimony. The standard rate of 15 p.c. is reduced to 10 p.c. in the case of dividends paid by a company that has a degree of Canadian ownership (see p. 968), and the rate on royalties from motion picture films is also 10 p.c.

The non-resident tax is withheld at the source by the Canadian payer. It is an impersonal tax levied without regard to the status or other income of the non-resident recipient. Non-residents who receive only this kind of income from Canada do not file returns in Canada.

Profits earned in Canada by a non-resident corporation carrying on business through a branch or permanent establishment in Canada are taxed at the regular rates of corporation income tax and are also subject to an additional tax of 15 p.c. This additional tax is imposed on profits attributable to the branch after deducting therefrom Canadian federal and provincial income taxes and an allowance in respect of the net increase in capital investment in property in Canada.

Gift Tax

The Income Tax Act levies a tax upon gifts. The rates range from 10 p.c. on an aggregate taxable value of \$5,000 or under to 28 p.c. on an aggregate taxable value of over \$1,000,000. Exemptions include complete exemption of gifts of \$1,000 or less per donee and a general deduction of \$4,000 from aggregate taxable value of gifts made in the year.

Estate Tax

This tax applies to property passing, or deemed to pass, at death. All the property of persons who were domiciled in Canada before their death must be taken into consideration no matter where that property is situated; for persons dying domiciled outside of Canada only their property situated in Canada is subject to tax.

In computing the tax of a Canadian domiciliary, the value of the whole estate is first determined. Once the aggregate value of the estate has been determined, estate debts and certain expenses may be deducted. From the resulting "aggregate net value" there may be deducted the amount of a basic exemption, which is increased where the deceased leaves a widow or dependent child, and also the amount of any charitable bequests to charitable organizations in Canada. After these deductions the amount left is the "aggregate taxable value" to which is applied the tax rates. From the tax so calculated may be deducted (1) a tax abatement in respect of property situated in a province that levies a succession duty, (2) a credit for gift tax paid on gifts made within three years of death (the value of which must be included in the aggregate net value of the estate), and (3) a credit for foreign taxes.

No estate valued at less than \$50,000 is subject to estate tax. This \$50,000 is not an exemption but the starting point for tax. The estate tax must not reduce the value of an estate after tax to less than \$50,000. The basic deductible exemption which applies to all estates of Canadian domiciliaries is \$40,000. This basic exemption of \$40,000 is increased to \$60,000 in respect of a deceased male survived by a spouse, or in respect of a deceased female survived by an incapacitated spouse and a dependent child. In both cases, there is an additional exemption of \$10,000 for each surviving dependent child (i.e., under 21). Finally, the basic exemption of \$40,000 is increased by \$15,000 for every surviving dependent child made an orphan by the death of the deceased.

The tax on the estates of Canadian domiciliaries is calculated by applying a graduated scale of rates. For an aggregate taxable value of \$5,000, or less, the rate is 10 p.c. For an aggregate taxable value of \$100,000, the tax is \$19,000 and anything between \$100,000 and \$150,000 is taxed at 21 p.c. At \$2,000,000 of taxable value, the tax is \$816,500 and the excess over \$2,000,000 is chargeable at the highest rate of 54 p.c.

As stated previously, there is an abatement from federal estate taxes otherwise payable, in respect of provincial succession duties. Generally, the abatement is a deduction of 75 p.c. from the federal tax otherwise payable in respect of property situated in a province that levies succession duties.*

The property situated in Canada of a deceased person not domiciled in Canada is subject to estate tax at a flat rate of 15 p.c. No deduction is allowed against the assessed value of such property except for debts specifically chargeable to it. However, there is a special provision that exempts all such property of less than \$5,000 value and also provides that the tax must not reduce the value of the property to less than \$5,000. (The Estate Tax Convention between Canada and the United States increases this figure to \$15,000.) Where property is subject to provincial duties, the 15-p.c. tax is abated by 75 p.c. (At present this abatement is only 50 p.c. in Ontario and Quebec.)

Excise Taxes

The Excise Tax Act levies a general sales tax and special excise taxes. Both the sales tax and the special excise taxes are levied on goods imported into Canada and on goods produced in Canada. They are not levied on goods exported. The sales tax, which is at the rate of 8 p.c., is levied on the manufacturer's sale price of goods produced or manufactured in Canada or on the duty-paid value of goods imported into Canada. For alcoholic beverages and tobacco products, the sale price for purposes of the sales tax includes excise duties levied under the Excise Act (see p. 972). An old age security tax of 3 p.c. is levied on the same basis as the 8-p.c. tax, bringing the total sales tax to 11 p.c.

Many classes of goods are exempt from sales tax. Foodstuffs, electricity and fuels for lighting or heating are generally exempt as well as articles and materials used by public hospitals. The products of farms, forests, mines and fisheries are, to a large extent, exempt as well as most equipment used in farming and fishing. Also, a variety of items are exempt from sales tax when purchased by municipalities. These and other exemptions are set forth in schedules to the Excise Tax Act.

A number of articles are subject to special excise taxes. Where these are ad valorem taxes they are levied on exactly the same price or duty-paid value as the general sales tax. Those levied at present are as follows:—

Cigarettes.....	2½ cents per 5 cigs.
Cigars.....	15 p.c. ad valorem
Jewellery, including clocks, watches, articles of ivory, amber, shell, precious or semi-precious stones, goldsmiths' and silversmiths' products except gold-plated or silver-plated ware for the preparation or serving of food or drink....	10 p.c. ad valorem
Lighters.....	the greater of 10 cents per lighter or 10 p.c. ad valorem
Playing cards.....	20 cents per pack
Radios.....	the greater of \$2 per radio or 15 p.c. ad valorem
Phonographs and television sets.....	15 p.c. ad valorem
Tubes for radios, phonographs and television sets, not including television picture tubes, priced under \$5 per tube.....	the greater of 10 cents per tube or 15 p.c. ad valorem
Television set picture tubes.....	15 p.c. ad valorem
Slot machines—coin, disc or token-operated games or amusement devices.....	10 p.c. ad valorem
Matches.....	10 p.c. ad valorem
Tobacco—pipe tobacco, cut tobacco and snuff.....	80 cents per lb.
Tobacco pipes, cigar and cigarette holders and cigarette rolling devices.....	10 p.c. ad valorem
Toilet articles, including cosmetics, perfumes, shaving creams, antiseptics, etc....	10 p.c. ad valorem

* See footnote †, p. 966.

Wines—*	
Wines of all kinds containing not more than 7 p.c. absolute alcohol by volume	25 cents per gal.
Non-sparkling wines containing more than 7 p.c. absolute alcohol by volume but not more than 40 p.c. proof spirit.....	50 cents per gal.
Sparkling wines.....	\$2.50 per gal.
Insurance premiums paid to British or foreign companies not authorized to transact business in Canada or to non-resident agents of authorized British or foreign companies.....	10 p.c. of net premium for property, surety, fidelity and liability insurance. (Most other kinds of insurance are exempt.)

All the foregoing items, except the last, are also subject to the general sales tax of 8 p.c. and the old age security tax of 3 p.c. Cigarettes, cigars and tobacco are subject to further taxes, referred to as excise duties (see below).

Excise Duties

The Excise Act levies taxes (referred to as excise duties) upon alcohol, alcoholic beverages and tobacco products produced in Canada. The customs tariff on such products imported into Canada includes a levy to correspond with the duties levied on domestic production. These duties are not levied on goods exported.

Spirits.—The duties are on a per-gallon basis in proportion to the strength of proof of the spirits. These duties do not apply to denatured alcohol intended for use in the arts and in industry, or for fuel, light or power, or for any mechanical purpose. The various duties are as follows:—

On every gallon of the strength of proof distilled in Canada.....	\$13.00
On every gallon of the strength of proof used in the manufacture of—	
Medicines, extracts, pharmaceutical preparations, etc.....	\$1.50 per gal.
Approved chemical compositions.....	15 cents per gal.
Spirits sold to a druggist and used in the preparation of prescriptions.....	\$1.50 per gal.
Imported spirits when taken into a bonded manufactory in addition to other duties.....	30 cents per gal.

Canadian Brandy.—Canadian brandy, a spirit distilled exclusively from juices of native fruits without the addition of sweetening materials, is subject to a duty of \$11 per gal.

Beer.—All beer or other malt liquor is subject to a duty of 38 cents per gal.

Tobacco, Cigars and Cigarettes.—The excise duties make up nearly as large a part of the total tax on tobacco products as the special excise taxes already described. The rates are as follows:—

On manufactured tobacco of all descriptions, except cigarettes.....	35 cents per lb.
Cigarettes weighing not more than 3 lb. per thousand (nearly all of the cigarettes used in Canada are of this type).....	\$4.00 per thousand
Cigarettes weighing more than 3 lb. per thousand.....	\$5.00 per thousand
Cigars.....	\$2.00 per thousand
Canadian raw leaf tobacco when sold for consumption.....	10 cents per lb.

Combined Effect of Excise Taxes and Excise Duties on Tobacco Products

Bringing together the taxes imposed on tobacco products under the Excise Tax Act and the duties imposed under the Excise Act gives the following total taxes:—

Cigarettes.....	\$9.00 per thousand (or 18 cents per pack of 20 cigarettes) plus the 11-p.c. sales tax on the manufacturer's sale price
Manufactured tobacco.....	\$1.15 per lb. plus the 11-p.c. sales tax on the manufacturer's sale price
Cigars.....	\$2.00 per thousand plus the 15-p.c. special excise tax and the 11-p.c. sales tax on the manufacturer's sale price.

* Applicable only to wines manufactured in Canada. The customs tariff on wines includes a levy to correspond with these taxes on domestic production.

Customs Duties*

Most goods imported into Canada are subject to customs duties at various rates as provided by tariff schedules. Customs duties, which once were the chief source of revenue for the country, have declined in importance as a source of revenue to the point where they now provide less than 10 p.c. of the total. Quite apart from its revenue aspects, however, the tariff still occupies an important place as an instrument of economic policy.

The Canadian Tariff consists mainly of three sets of rates, namely, British Preferential, Most-Favoured-Nation and General. The British Preferential rates are, with some exceptions, the lowest rates. They are applied to imported dutiable commodities shipped directly to Canada from countries within the Commonwealth. Special rates lower than the ordinary preferential duty are applied on certain goods imported from designated Commonwealth countries.

The Most-Favoured-Nation rates apply to goods from countries that have been accorded tariff treatment more favourable than the General Tariff but which are not entitled to the British Preferential rate. Canada has Most-Favoured-Nation arrangements with almost every country outside the Commonwealth. The most important agreement providing for the exchange of Most-Favoured-Nation treatment is the General Agreement on Tariffs and Trade.

The General Tariff applies to imports from countries not entitled to either the Preferential or Most-Favoured-Nation treatment. Few countries are in this category and in terms of trade coverage are negligible.

In all cases where the tariff applies there are provisions for drawbacks of duty on imports of materials used in the manufacture of products later exported. The purpose of these drawbacks is to assist Canadian manufacturers to compete with foreign manufacturers of similar goods. There is a second class of drawbacks known as "home consumption" drawbacks. These apply to imported materials used in the production of specified classes of goods manufactured for home consumption.

The tariff schedules are too lengthy and complicated to be summarized here but the rates that apply on any particular item may be obtained from the Department of National Revenue, which is responsible for administering the Customs Tariff.

Subsection 2.—Provincial Taxes

All of Canada's ten provinces impose a wide variety of taxes to raise the revenue necessary for provincial purposes. All provinces levy a tax on the income of individuals and corporations resident within their boundaries or deriving income from activities or operations carried out therein. Only the Provinces of Ontario and Quebec impose special taxes on corporations in addition to income tax and only the Provinces of Ontario, Quebec and British Columbia impose a tax on property passing at death. Under the terms of the existing federal-provincial fiscal arrangement, the Federal Government makes "equalization payments" to some provinces in recognition of the fact that the actual tax revenue from the fields of income tax, death duties and natural resource revenue in those provinces, measured on a per capita basis, is lower than the average per capita yield from these taxes in the two provinces where they produce the highest yield. For some provinces these payments constitute a very important source of revenue.

Some of the more important provincial levies are reviewed briefly on the following pages.

* See also pp. 947-955.

Individual Income Tax

All provinces levy a tax on the income of individuals who reside within their boundaries or who earn income therein. In nine of the ten provinces, these taxes are computed as a percentage of federal "basic tax". As previously explained, "basic tax" is federal income tax (excluding old age security tax) otherwise payable at full federal rates before the abatement under the Federal-Provincial Fiscal Arrangements and before allowance for the federal tax reduction passed in 1965. These provincial taxes are collected by the Federal Government on behalf of these provinces. In Quebec, provincial income tax is levied at graduated rates that progress from 4.8 p.c. on the first \$1,000 of taxable income to a maximum of 35.2 p.c. on the excess over \$400,000. The determination of taxable income for Quebec tax is based on exemptions and deductions similar to those for federal tax. The Province of Quebec collects its own tax.

The percentages that provincial income tax liability is of federal "basic tax" for 1965 are: Newfoundland, Prince Edward Island, Nova Scotia, New Brunswick, Ontario, Alberta and British Columbia each 21 p.c., Quebec approximately 44 p.c., Manitoba 26 p.c. and Saskatchewan 27 p.c.

Corporate Income Tax

All provinces levy a tax on the profits of corporations derived from activities carried out within their boundaries. In all provinces except Ontario and Quebec the provincial tax imposed on taxable income in the province is determined on the same basis as for federal income tax. In Ontario and Quebec the determination of taxable profits for purposes of provincial tax follows closely the federal rules. The rate of tax in Newfoundland, Prince Edward Island, Nova Scotia, New Brunswick, Alberta and British Columbia is 9 p.c. of corporate taxable income. The rate that applies in Manitoba and Saskatchewan is 10 p.c., in Ontario 11 p.c. and in Quebec 12 p.c.

Four of the ten provinces levy corporate income taxes at rates in excess of the abatement allowed by the Federal Government. This abatement is equal to 9 p.c. of corporate profits except in Quebec where it is 10 p.c. (see p. 969). All provinces except Ontario and Quebec have signed agreements for the collection of their income taxes by the Federal Government.

Taxes on Alcoholic Beverages and Tobacco

Generally speaking, the sale of spirits in all provinces is made through provincial agencies operating as boards or commissions which exercise monopolistic control over alcoholic beverages. The provincial mark-up over the manufacturer's price is the effective means of revenue. Beer and wine may be sold by retailers or government stores depending on the province but in all cases they contribute to provincial revenues.* The Province of Prince Edward Island imposes a tax of 10 p.c. on all beer, wine and spirits sold at retail, collected under authority of the Health Tax Act.

Newfoundland imposes a tax on tobacco sold at retail of one quarter of one cent per cigarette purchased; from one to five cents per cigar, depending on price; and one cent per half ounce or less of other tobacco. Prince Edward Island's tax on tobacco sold at retail is one fifth of one cent per cigarette purchased; from one to three cents per cigar, depending on price; and 10 p.c. of the retail price of all other tobacco purchased. Saskatchewan's tax on retail tobacco sales is one fifth of one cent per cigarette purchased; from one to five cents per cigar, depending on price; and one cent on every half ounce of other tobacco;

* The provincial mark-up over the manufacturer's price is not considered a "tax" in DBS financial statistics, but forms part of the "profits of government business enterprises".

the average rate of the tobacco tax is 10 p.c. Specific sales taxes on tobacco products are also levied in New Brunswick, Quebec and Manitoba, and Ontario has enacted a tax on tobacco products to come into effect upon proclamation and simultaneously to replace retail sales tax on such items.

Retail Sales Taxes

Retail sales taxes are levied on the final purchaser or user and are collected by the retailer. Eight provinces now levy this type of tax at rates varying from 3 p.c. to 6 p.c. These provinces are Newfoundland, Prince Edward Island, Nova Scotia, New Brunswick, Quebec, Ontario, Saskatchewan and British Columbia. These direct levies apply to tangible taxable commodities sold for consumption in the province and to a few selected services, for example, to local telephone services in all provinces and to telecommunications and hotel and motel charges in Quebec.

Amusement Taxes

Each of the provinces with the exception of Alberta, Saskatchewan, British Columbia and Quebec has a tax on admission to places of entertainment. In addition, there is generally a licence fee imposed on the operator or owner of these amusement places. The tax on admissions is within the range of 5 p.c. to 15 p.c.

Gasoline and Diesel Fuel Oil Taxes

Each of the ten provinces imposes a tax on the purchase of gasoline by motorists and truckers. The rates vary from 12 cents per gallon in Alberta to 19 cents in Nova Scotia and Newfoundland. The amount of tax borne by one gallon of motor vehicle fuel in each province is as follows:—

<i>Gasoline</i>	<i>Diesel Fuel</i>		<i>Gasoline</i>	<i>Diesel Fuel</i>
cts.	cts.		cts.	cts.
Newfoundland.....	19		Ontario†.....	15
Prince Edward Island*	18		Manitoba.....	17
Nova Scotia.....	19		Saskatchewan.....	14
New Brunswick.....	18		Alberta.....	12
Quebec.....	16		British Columbia.....	13
				15

Motor Vehicle Licences and Fees

Each province levies a fee on the annual registration of motor vehicles, which is compulsory. Upon registration a vehicle is issued with licence plates. The rates of fee vary from province to province and, in the case of passenger cars, may be assessed on the weight of the vehicle, the wheel base, the year of manufacture, the number of cylinders of the engine, or at a flat rate. The fees for commercial motor vehicles and trailers are based on the gross weight for which the vehicle is registered, i.e., the weight of the vehicle empty plus the load it is permitted to carry. Every operator or driver of a motor vehicle is required to obtain a driver's licence and pay a fee therefor. The licences are valid for periods of from one to five years and the fees vary from \$1.00 to \$2.50 a year.

* Gasoline and diesel fuel used by primary producers—farmers, fishermen, manufacturers and processors—is exempt from tax as is also gasoline and motor fuel used by owners/or operators of registered pleasure craft.

† Some relief from taxation is given where gasoline or fuel oil is used for farming, manufacturing, commercial fishing and other off-highway purposes.

‡ Generally, fuel oil used for agricultural and industrial purposes is exempt from tax.

Taxes on Mining Operations

All provinces except Prince Edward Island levy taxes of various kinds on mining operations. All provinces except Prince Edward Island and Alberta impose a tax on the income of firms engaged in mining operations in general or in specific kinds of mining operations. The Provinces of British Columbia, Alberta, Saskatchewan, Manitoba and Ontario impose a tax on the assessed value of minerals or a flat rate per acre of mining property. Manitoba imposes rates of from 6 p.c. to 11 p.c. on mining royalties.

Tax on Logging Operations

The Provinces of Ontario, Quebec and British Columbia levy a tax on the income from logging operations of individuals, partnerships, associations or corporations engaged in this activity. In Quebec and Ontario the rate is 10 p.c. on net income where in excess of \$10,000 and in British Columbia the tax is 10 p.c. on net income where in excess of \$25,000. In Ontario and Quebec one third and in British Columbia 18 p.c. of the tax is allowed as a deduction from provincial corporate income tax, and the remainder is deductible from federal income tax.

Business Taxes

The Province of Quebec imposes a tax of one tenth of 1 p.c. on paid-up capital of corporations and Ontario levies a similar tax at the rate of one twentieth of 1 p.c.

The Provinces of Quebec and Ontario have a place-of-business tax. In Quebec, the tax ranges from \$25 to \$100 for each place of business with the higher amounts being levied when capital paid up is \$100,000 or more. In Ontario, the tax for each permanent establishment is the lesser of \$50 or one twentieth of 1 p.c. of paid-up capital of the corporation involved, but the total of the capital tax and the place-of-business tax cannot be less than \$20. Ontario also imposes an office tax of \$50 on every corporation that does not maintain a permanent establishment in the province but merely maintains a buying office, or merely holds certain provincial licences, or merely holds assets. A corporation that does not maintain a permanent establishment in Ontario but is represented by a resident employee or agent who is not deemed to operate a permanent establishment of the corporation in the province must pay an office tax of \$50 or one tenth of 1 p.c. of the total amount of its gross Ontario sales or revenue if less than \$50,000, subject to a minimum office tax of \$5.

Both provinces levy special taxes on certain kinds of companies such as banks, railway companies, express companies, trust companies and sleeping-car, parlour-car and dining-car companies. In Ontario, these special taxes (except the tax payable by insurance corporations calculated on gross premiums) and the capital and place-of-business taxes are payable only to the extent that they exceed the corporate income tax otherwise payable.

The Province of Prince Edward Island charges special annual licence fees to most insurance companies, banks, acceptance companies, chain theatres and chain stores, steamship companies, telephone, telegraph and electric light companies and brokers, as well as nominal licence fees to other incorporated companies, the latter being similar to filing fees in other provinces.

Land Transfer Taxes

The Provinces of Alberta and Ontario levy a tax based on the value of the consideration at which ownership of land is transferred. In Ontario, a straight one fifth of 1 p.c. tax is imposed. In Manitoba, a tax of $2\frac{1}{2}$ p.c. of the valuation or purchase price (whichever is greater) is imposed only when property is transferred under the Bankruptcy or Winding-up Acts. Other provinces do not have a land transfer tax but most have a scale of charges or fees imposed upon registration of transfer of land. These fees are not regarded as taxes since a service is rendered or an assurance given with each charge.

Tax on Security Transfers

The Provinces of Ontario and Quebec levy a tax on the sale price of securities transferred; the rates in each province are:—

Shares sold, transferred or assigned valued at—	
Under \$1.....	1/10th of 1 p.c. of value
\$ 1 to \$ 5.....	$\frac{1}{2}$ cent per share
\$ 5 to \$ 25.....	1 cent per share
\$25 to \$ 50.....	2 cents per share
\$50 to \$ 75.....	3 cents per share
\$75 to \$150.....	4 cents per share
Over \$150.....	4 cents per share plus 1/10th of 1 p.c. of value in excess of \$150
Bonds and debentures.....	3 cents for every \$100 or fraction thereof of par value.

Tax on Premium Income of Insurance Companies

All ten provinces impose a tax of 2 p.c. on the premium income of insurance companies relative to risks incurred in the province.

Succession Duties

Only the Provinces of Ontario, Quebec and British Columbia levy succession duties. These duties are a tax upon the right to succeed to property and are assessed upon the interest or benefit passing at death to an heir or beneficiary. The three provinces impose succession duties on all property situated in the province belonging to the deceased and passing at his death whether the deceased was domiciled in the province or elsewhere. Personal property wherever situated of a person dying domiciled within the province is also liable if passing to a successor resident or domiciled in the province.

The rates of succession duty are generally governed by the value of the estate, the relationship of the beneficiary to the deceased and the amount going to any one person. The rate of tax increases as the degree of relationship between the deceased and his successor becomes more remote.

Provincial Property Taxes

In unorganized (non-municipal) areas, British Columbia levies property taxes at varying rates according to class for provincial revenue. Improved, forest and tree-farm lands are taxed at 1 p.c. of assessed value; farm land at one half of 1 p.c.; wild land at 3 p.c.; coal land at 2 p.c. (non-operating) or 7 p.c. (operating); and timber land at $1\frac{1}{2}$ p.c. In unorganized (non-municipal) areas, Ontario levies a property tax of $1\frac{1}{2}$ p.c. of assessed value; the minimum annual tax in respect of any land is \$6. Nova Scotia and New Brunswick also impose property taxes of limited application.

Race Track Taxes

Ontario levies a tax on operators of race meets and upon holders of winning tickets issued under the pari-mutuel system. The tax on race meeting operators is imposed at the rate of \$1 for each day the meet is conducted. Holders of winning tickets must pay a tax equal to 6 p.c. upon the amount which would be payable to them if no percentage were deducted by the person holding the race meeting. A number of other provinces levy a pari-mutuel tax on money bet in the province on horse races: in Newfoundland the rate is 11 p.c., in Prince Edward Island $10\frac{1}{2}$ p.c., in New Brunswick $5\frac{1}{2}$ p.c., in Manitoba 10 p.c., in Alberta and Saskatchewan 5 p.c., and in Quebec 7 p.c. on ordinary pools and 9 p.c. on special pools (quinella and daily-double). In British Columbia the tax is 12 p.c. but the province returns $2\frac{1}{2}$ p.c. of money bet to horsemen and track operators for purses, etc.

Subsection 3.—Municipal Taxes

The municipalities in Canada levy taxes on the owners of property situated within their jurisdiction according to the assessed value of such property. Methods of determining assessed value vary widely but for taxation purposes it is generally considered to be a percentage of the actual value. The revenues from such taxes are used to pay for street maintenance, schools, police and fire protection, snow removal in certain communities and other community services. Special levies are sometimes made on the basis of street frontage to pay for local improvements to the property such as sidewalks, roads and sewers. Not only is there a widespread difference in the bases used for property tax but there is also a wide variety of rates applied, depending on the municipality.

In addition to the taxes described above, municipalities usually impose a charge for the water consumption of each property holder or a water tax based upon the rental value of the property occupied. There are no municipal income taxes although certain localities have retained the use of a poll tax. In Newfoundland, Quebec and Saskatchewan, municipalities are empowered to levy an amusement tax on the admission of persons to places of entertainment, although the amusement tax is generally a provincial preserve (see p. 975). Electricity and gas are taxed at the consumer level in some western municipalities and coal and fuel oil for heating purposes are chargeable in urban areas of Newfoundland. Telephone subscribers are subject to a special levy in Montreal and certain Ontario municipalities impose a tax on the gross receipts of telephone companies.

In most municipalities, a tax is levied directly on the tenant or the operator of a business. In general, business tax rates are lower than those applying to property. Three bases of assessment are in use—a fraction of the property assessment, the annual rental value of the premises, or the area of the premises. Certain municipalities may charge a licence fee instead of a business tax but others charge both a licence fee and a business tax. In Nova Scotia, all but one of the municipalities tax personal property (stock in trade, equipment, etc.) the same as real property.

Subsection 4.—Miscellaneous Levies

These are not generally referred to as taxes but they are similar to taxes in many ways.

Unemployment Insurance

For the past twenty-five years, a national program of unemployment insurance has been in operation in Canada. Essentially, it provides relief to those qualified persons who temporarily find themselves without work. It is administered by a federal commission appointed for this purpose and financed by equal contributions from employers and employees plus a contribution from the Federal Government. The amount paid into the fund by employee and employer is directly proportional to the weekly wages of the employee. The rates of contributions, together with statistics on the operation of the program, are given at pp. 745-749.

Workmen's Compensation

Legislation in force in all provinces provides compensation for personal injury suffered by workmen as a result of industrial accidents. In general, these provincial statutes establish an accident fund administered by a Board to which employers are required to contribute at a rate proportional with the hazards of the industry. See also pp. 750-751.

Hospital Insurance

A federal-provincial hospital insurance plan has been adopted by each of the ten Canadian provinces. Under this arrangement, the Federal Government pays approximately one half of the cost of hospitalization for patients who are participants under the plan. The provinces meet the remainder of the cost. Provincial revenues for this purpose are raised by various means. The Province of Quebec has increased its personal and corporation income tax. Certain provinces require the deduction of a monthly premium from the wages of their residents as a contribution or premium for the plan. In such provinces non-salaried people must also pay the premium directly if they wish to be covered by the plan. In some other provinces the proceeds of a retail sales tax are earmarked in whole or in part for the support of the hospital plan. See also pp. 288-291.

Section 3.—Federal Government Finance

Subsection 1 of this Section contains financial statistics of the Federal Government prepared as far as possible in accordance with the classifications, concepts and definitions used in the preparation of provincial and municipal finance statistics. These tables differ from the information presented in Subsection 2 in that the latter has been extracted directly from the *Public Accounts of Canada*. Detailed reports published by the Dominion Bureau of Statistics provide reconciliations of revenue, expenditure and debt as set out in Subsections 1 and 2. The *Public Accounts of Canada* presentation is retained for continuity and also because there is interest in and use for information on this basis.

Subsection 1.—DBS Statistics of Federal Government Finance

Revenue and Expenditure.—Table 4 shows details of net general revenue of the Federal Government for the years ended Mar. 31, 1963 and 1964.

4.—Details of Net General Revenue of the Federal Government, Years Ended Mar. 31, 1963 and 1964

Source	1963	1964	Source	1963	1964
	\$'000	\$'000		\$'000	\$'000
Taxes—			Privileges, Licences and Permits—		
Income—			Natural resources.....	3,928	5,232
Corporation ¹	1,298,087	1,374,708	Other.....	22,548	23,927
Individual ¹	2,018,276	2,167,674	Sales and services other than		
On interest, dividends and			institutional.....	62,617	66,431
other income going abroad	129,137	124,500	Fines and penalties.....	1,213	1,548
General sales ¹	1,108,210	1,277,815	Exchange fund profits.....	35,227	62,594
Excise Duties and Special			Receipts from government en-		
Excise Taxes—			terprises.....	107,084	124,651
Alcoholic beverages.....	219,814	233,407	Bullion and coinage.....	9,706	10,625
Tobacco.....	383,553	390,636	Postal service.....	222,359	235,865
Other.....	37,889	41,721	Other revenue.....	11,979	13,228
Customs import duties.....	644,992	581,441	Non-revenue and surplus re-		
Estate taxes.....	87,143	90,671	ceipts.....	22,751	27,695
Other.....	491	219			
Totals, Taxes.....	5,927,592	6,282,792	Totals, Net General	6,427,004	6,854,588
			Revenue.....		

¹ Includes old age security taxes.

Table 5 gives details of the amounts paid by the Federal Government to provincial governments, territories and municipal corporations for the year ended Mar. 31, 1964 and Table 6 gives details of expenditure by function for 1963 and 1964.

5.—Payments by the Federal Government to Provincial Governments, Territories and Municipal Corporations, Year Ended Mar. 31, 1964

Payee and Purpose	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	All Prov- inces	Yukon	N.W.T.	Canada
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Provincial Governments and Territories														
Federal-provincial financial arrangements.....	15,261	3,893	21,342	17,416	70,216	—	15,896	23,592	10,452	—190	177,878	1,923 ¹	2,528 ¹	182,339
Share of income tax on power utilities.....	106	54	638	40	4,623	9	46	9	2,742	501	9,868	—	—	9,868
Subsidies.....	20,166 ²	4,157 ³	12,632 ³	12,245 ³	3,964	4,624	2,103	2,120	2,852	1,672	66,525	—	—	66,525
Totals, Above Items.....	35,613	8,104	34,612	29,701	78,803	5,643	18,045	25,721	16,046	1,983	254,271	1,923	2,528	288,722
Grants-in-Aid and Shared-Cost Contributions—														
Transportation—														
Trans-Canada Highway.....	11,304	1,004	882	5,052	8,006	4,209	60	2	246	8,475	39,240	—	—	39,240
Roads leading to resources.....	750	1,000	900	750	1,397	1,932	750	198	750	1,024	8,132	—	—	8,132
Other transportation.....	8	5	384	192	1,708	—	—	—	300	1,169	4,396	—	—	4,896
Health—														
Hospital insurance and diagnostic services.....	8,725	1,923	15,175	12,611	113,849	136,040	19,665	21,312	28,311	33,687	391,298	349	597	392,244
Hospital construction.....	1,259	80	1,137	1,083	5,883	7,500	958	1,510	1,974	881	22,275	3	22	22,300
General Health Grants—														
General public health.....	340	169	704	518	1,794	2,703	729	603	1,108	1,325	10,002	—	62	10,064
Tuberculosis control.....	148	30	140	105	1,043	784	178	146	216	248	3,038	19	4	3,061
Mental health.....	178	74	304	270	2,575	2,700	435	436	652	581	8,304	27	—	8,331
Professional training.....	110	19	82	50	638	411	88	75	136	131	1,740	—	3	1,743
Cancer control.....	13	16	48	110	478	1,269	163	162	234	283	2,806	—	4	2,810
Public health research.....	5	—	86	7	613	497	83	31	104	144	1,570	—	9	1,579
Medical rehabilitation and crippled children.....	61	12	78	86	690	298	122	45	97	235	1,724	—	1	1,725
Child and maternal health.....	57	7	72	38	393	347	64	75	70	81	1,204	—	—	1,204
Other health.....	3	2	25	5	320	188	43	4	6	7	603	—	—	603
Social Welfare—														
Old age assistance.....	1,845	395	2,084	2,121	13,880	9,135	2,106	2,151	2,560	2,782	39,139	12	57	39,208
Blind persons' allowances.....	247	47	469	418	1,643	1,048	230	246	278	336	4,959	2	2	4,988
Disabled persons' allowances.....	587	311	1,230	860	8,081	6,183	613	669	798	930	20,194	2	11	20,207
Unemployment assistance.....	4,513	400	1,791	1,925	39,459	24,469	5,773	4,841	7,960	10,263	107,215	59	97	107,371
Other social welfare.....	17	4	45	65	—	229	220	141	53	44	818	1	—	819
Recreation—														
Campground and picnic area developments.....	—	17	42	39	—	—	18	68	18	48	250	15	1	265
Fitness and amateur sport.....	—	—	30	28	—	—	64	8	42	11	239	3	7	249
Other recreation.....	—	—	—	8	—	—	—	—	—	—	8	—	11	19
Education—														
Technical and vocational training—														
Capital assistance to trade schools, etc.....	4,921	1,520	3,584	1,565	8,974	59,350	797	2,428	12,080	6,777	101,946	92	—	102,038

Vocational high school training.....	6	51	150	36	837	841	137	165	214	239	2,755	9	—	1	2,764
Technician training.....	15	—	14	33	5,470	857	44	215	345	70	7,063	—	—	1	7,064
Occupational training.....	391	23	280	108	5,801	940	109	364	1,462	682	10,220	59	9	9	10,288
Apprenticeship training.....	47	—	127	64	—	734	82	174	552	555	2,335	—	—	—	2,335
Assistance to students.....	8	6	10	11	100	100	7	30	10	30	312	1	3	3	316
Training of unemployed workers.....	294	131	413	305	1,497	6,118	474	294	284	644	10,454	34	4	4	10,492
Training of disabled persons.....	16	—	88	25	111	220	81	41	8	15	605	—	—	—	605
Other.....	54	—	61	53	77	28	15	8	198	32	526	—	3	—	529
Citizenship and language instruction for immigrants.....	—	2	—	—	—	187	3	7	1	9	210	—	—	—	210
Other training.....	—	—	—	—	—	46	—	1	3	—	50	169	—	—	219
Natural Resources—															
Registered trappers.....	—	—	—	—	—	91	39	40	—	—	170	—	—	—	170
Construction of vessels.....	43	—	150	80	227	—	—	—	—	—	500	—	—	—	500
Forest inventories, reforestation, protection and improvement.....	264	40	241	363	1,917	1,557	519	393	1,014	1,831	8,139	—	—	—	8,139
Agricultural assistance (lime, 4-H Clubs, farm labour agreements, rehabilitation and development, transport of fodder, etc., crop in- surance and other).....	28	178	284	202	2,427	198 1,509 ⁴	1,144 6,091 ⁴	1,246	272	177 38	6,156 7,638	—	—	18	6,156 7,656
Other.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Civil defence.....	43	25	190	149	1,265	1,354	202	155	509	532	4,424	—	—	—	4,424
Winter works projects in municipali- ties.....	255	73	71	173	10,962	6,022	1,081	1,552	2,971	3,466	26,626	1	17	17	26,644
Grants to research councils.....	—	—	20	7	—	62	—	33	33	33	188	—	—	—	188
Other.....	—	—	—	—	—	—	—	—	—	—	—	24	828	—	832
Totals, Grants-in-Aid and Shared-Cost Contributions.....	36,636	7,573	31,482	29,594	241,135	280,727	43,210	39,981	65,769	83,815	859,972	881	1,796	—	862,649
Totals, Paid to Provincial Governments and Territories.....	72,299	15,677	66,094	59,295	319,938	286,370	61,255	65,702	81,815	85,798	1,114,243	2,804	4,324	—	1,121,371
Municipal Corporations															
Grants in lieu of taxes on federal proper- ty.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Special grants.....	162	130	3,662	783	4,689	14,757	1,882	944	2,051	2,743	31,803	4	113	—	31,920
Grants-in-Aid and Shared-Cost Contri- butions—						99 ⁶					1,899	—	—	—	1,899
Transportation.....	52	—	264	38	1,095	2,079	399	15	606	113	4,661	—	—	—	4,661
Health.....	12	14	17	30	117	5,002	135	443	263	1,867	7,900	—	—	—	7,900
Schools operated by local authorities.....	—	—	—	24	414	217	199	530	319	274	1,977	—	—	—	1,977
Slum clearance.....	—	—	—	370	1,912	997	60	—	—	422	3,840	—	—	—	3,840
Other.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Totals, Paid to Municipal Cor- porations.....	226	144	4,022	3,045	8,227	23,151	2,675	1,922	3,239	5,419	52,060	4	113	—	52,197
Grand Totals.....	72,525	15,821	70,116	62,340	328,165	309,521	63,930	67,634	85,054	91,217	1,166,323	2,808	4,437	—	1,173,568

¹ Federal tax abatement grant.² Consists of Atlantic Provinces adjustment grant \$10,500; additional subsidy \$8,000 and annual statutory subsidies \$1,656.³ Includes Atlantic Provinces adjustment grants: P.E.I. \$3,500; N.S. \$10,500; N.B. \$10,500.⁴ Conservation and control of water resources.⁵ Financial assistance to the Town of Ormocto.⁶ Grant to City of Ottawa re interest on debentures issued to finance certain sewer and waterworks projects undertaken in advance of normal construction.

**6.—Details of Net General Expenditure of the Federal Government, Years Ended
Mar. 31, 1963 and 1964**

Function	1963	1964	Function	1963	1964
	\$'000	\$'000		\$'000	\$'000
Defence services and mutual aid.....	1,596,134	1,719,008	Education—		
Veterans pensions and other benefits.....	337,761	330,571	Indian and Eskimo schools..	36,895	38,668
General Government—			Universities, colleges and other schools.....	234,775	163,679
Executive and administrative.....	256,768	259,245	Other.....	3,264	3,979
Legislative.....	20,634	25,656	Totals, Education.....	274,934	206,326
Research, planning and statistics.....	12,138	13,808	Natural Resources and Primary Industries—		
Totals, General Government.....	289,540	298,709	Fish and game.....	23,970	24,646
Protection of Persons and Property—			Forests.....	16,620	19,004
Law enforcement.....	8,383	10,595	Lands, settlement and agriculture.....	240,244	295,081
Corrections.....	24,126	26,045	Minerals and mines.....	49,051	49,957
Police protection.....	52,967	52,892	Water resources.....	5,488	10,269
Other.....	9,931	9,594	Other.....	21,722	22,275
Totals, Protection of Persons and Property.....	95,407	99,126	Totals, Natural Resources and Primary Industries.....	357,095	421,232
Transportation—			Trade and industrial development.....	15,757	18,937
Air.....	86,912	66,772	National Capital area planning and development.....	18,389	22,705
Road.....	74,131	81,565	Loss on foreign exchange.....	9,115	—330
Rail.....	104,164	118,503	Debt Charges (excluding debt retirement)—		
Water.....	135,234	147,940	Interest.....	716,093	781,534
Other.....	3,714	3,665	Other.....	38,847	41,317
Totals, Transportation.....	404,155	418,445	Totals, Debt Charges (excluding debt retirement).....	754,940	822,851
Communications — telephone, telegraph and wireless.....	30,449	32,008	Payments to government enterprises.....	155,301	149,475
Health—			Payments to Provincial Governments—		
General.....	7,711	10,423	Fiscal arrangements.....	202,295	182,329
Public.....	37,780	40,505	Share of income tax on power utilities.....	10,000	9,868
Medical, dental and allied services.....	8,706	11,481	Subsidies.....	66,471	66,525
Hospital care.....	371,179	429,944	Grants to Municipal Governments in lieu of taxes.....	29,947	31,920
Totals, Health.....	425,376	492,363	Totals, Payments to Provincial and Municipal Governments ²	308,713	290,642
Social Welfare—			Citizenship and immigration..	17,042	17,365
Aid to aged persons ¹	772,732	847,792	External affairs.....	22,516	25,258
Aid to blind persons.....	4,951	5,057	International co-operation and assistance.....	56,892	74,614
Aid to unemployed employables and unemployables..	116,111	127,577	Housing research and slum clearance.....	4,287	4,864
Family allowances.....	534,634	541,321	Civil defence.....	9,172	10,153
Labour.....	3,283	4,229	Postal service.....	218,828	241,942
National employment and unemployment insurance services.....	106,387	110,290	Royal Canadian Mint.....	1,978	2,675
Other.....	26,945	30,012	Other.....	132,753	147,866
Totals, Social Welfare.....	1,565,043	1,666,278	Non-expense and Surplus Payments.....	34,426	425
Recreational and Cultural Services—			Totals, Net General Expenditure.....	7,168,394	7,548,008
Archives, art galleries, museums and libraries.....	3,335	5,206			
Parks.....	19,303	17,465			
Other.....	9,753	11,829			
Totals, Recreational and Cultural Services.....	32,391	34,500			

¹ Includes pensions paid from the Old Age Security Fund. ² Unconditional payments; grants for specific purposes are classified by function. See Table 5 for details of all grants to provincial governments and municipal corporations.

Debt.—In Table 7, direct debt represents total liabilities less sinking funds and indirect debt consists of guarantees of direct debt of other authorities by the Federal Government. Table 8 gives the gross bonded debt of the Federal Government and the average interest rates and terms of issue as at Mar. 31, 1961-64, together with place of payment.

7.—Direct and Indirect Debt (less Sinking Funds) of the Federal Government as at Mar. 31, 1961-64

Nature of Debt	1961	1962	1963	1964
	\$'000	\$ '000	\$'000	\$'000
Direct Debt				
Funded Debt—				
Bonded debt.....	14,132,915	15,060,736	15,796,836	16,510,097
Less sinking funds.....	17,018	19,432	22,512	—
Net funded debt.....	14,115,897	15,041,304	15,774,324	16,510,097
Short-term treasury bills ¹	1,935,000	1,885,000	2,165,000	2,230,000
Accounts and other payables.....	999,076	1,104,607	1,468,897	1,447,585
Annuity, insurance and pension accounts.....	3,955,510	4,258,100	4,748,506	5,132,423
Other liabilities.....	363,804	363,403	416,767	430,498
Totals, Direct Debt (less Sinking Funds)	21,369,287	22,652,414	24,573,694	25,750,603
Indirect Debt				
Guaranteed bonds or debentures.....	1,672,690	1,636,115	1,381,361	1,377,611
Less sinking funds.....	—	—	—	—
Net guaranteed bonds or debentures.....	1,672,690	1,636,115	1,381,361	1,377,611
Guaranteed bank loans.....	208,758	168,540	141,353	219,039
Guaranteed insured loans under National Housing Act, 1954.....	3,017,404	3,640,000	4,123,000	4,499,000
Guarantees under Export Credits Insurance Act.....	109,934	291,700	333,646	378,096
Other guarantees.....	7,527	11,300	12,976	14,491
Totals, Indirect Debt (less Sinking Funds) ²	5,016,313	5,747,655	5,992,336	6,488,237
Totals, Direct and Indirect Debt (less Sinking Funds)	26,385,600	28,400,069	30,566,030	32,238,840
	\$	\$	\$	\$
Direct debt (less sinking funds) per capita.....	1,172	1,220	1,300	1,339
Indirect debt (less sinking funds) per capita.....	275	310	317	337

¹ Having a term of three months.

² Excludes deposits of chartered banks in Bank of Canada.

8.—Gross Bonded Debt of the Federal Government, Average Interest Rate and Term of Issue, and Place of Payment as at Mar. 31, 1961-64

Item	1961	1962	1963	1964
Bonded debt.....	\$'000 14,132,915	15,060,736	15,796,836	16,510,097
Average interest rate.....	p.c. 3.98	4.01	4.13	4.27
Average term of issue.....	yrs. 13.29	12.19	13.36	13.09
Place of Payment—				
Canada.....	\$'000 14,002,750	14,930,570	15,385,847	16,133,692
New York.....	98,175	98,175	376,405	376,405
London (England).....	31,990	21,991	34,584	—

Subsection 2.—Public Accounts Statistics of Federal Government Finance

Revenue and Expenditure.—Tables 9 and 10 show details of revenue and expenditure of the Federal Government for the fiscal years ended Mar. 31, 1963 and 1964, as presented in the *Public Accounts of Canada*, and for the year ended Mar. 31, 1965, from the abridged data appearing in the *Canada Gazette*.

9.—Revenue of the Federal Government, Years Ended Mar. 31, 1963-65

SOURCES: *Public Accounts of Canada* and *Canada Gazette*

Revenue	1963	1964	1965
	\$	\$	\$
Tax Revenue—			
Customs import duties.....	644,992,131	581,441,461	622,101,883
Excise duties.....	381,865,989	393,326,182	411,402,145
Income tax.....	3,056,600,380	3,248,530,746	3,770,814,463
Personal ¹	1,744,626,029	1,866,073,635	2,103,281,917
Corporation ¹	1,182,836,979	1,858,957,490	1,623,814,601
On interest, dividends, rents, and royalties going abroad ..	129,137,372	124,499,621	143,717,945
Sales tax (net) ¹	805,970,471	946,054,797	1,204,609,934
Estate tax, including succession duties.....	87,143,312	90,671,283	88,625,641
Other taxes.....	260,405,101	273,507,313	269,222,184
Totals, Tax Revenue.....	5,236,977,384	5,533,531,782	6,366,776,250
Non-tax Revenue—			
Post Office.....	192,771,815	200,717,142	230,435,714
Return on investments ²	311,860,829	366,412,592	422,693,741
Bullion and coinage.....	9,404,342	9,717,080	12,298,922
Other.....	127,694,508	142,825,443	148,105,160
Totals, Non-tax Revenue.....	641,731,494	719,672,257	813,533,537
Grand Totals, Revenue.....	5,878,708,878	6,253,204,039	7,180,309,787

¹ Excludes tax credited to the Old Age Security Fund. the Bank of Canada.² Includes interest on investments and profits of

10.—Expenditure of the Federal Government, Years Ended Mar. 31, 1963-65

SOURCES: *Public Accounts of Canada* and *Canada Gazette*

Expenditure	1963	1964	1965
	\$	\$	\$
Agriculture.....	183,426,730¹	225,681,474¹	165,723,844
Acreage payments to western grain producers.....	139,402	—	—
Freight assistance on western feed grains.....	—	2	—
Other.....	183,287,328	225,681,474	165,723,844
Atlantic Development Board.....	5,033	196,331	4,294,153
Atomic Energy Control Board.....	63,205,370	45,965,220	46,564,793
Auditor General's Office.....	1,218,834	1,258,359	1,589,889
Board of Broadcast Governors.....	353,913	341,849	367,645
Canadian Broadcasting Corporation.....	80,815,947	87,575,697	87,969,198
Central Mortgage and Housing Corporation.....	8,654,465	13,469,874	14,952,238
Chief Electoral Officer.....	11,815,352	11,875,892	578,175
Citizenship and Immigration.....	66,237,381	71,545,372	82,357,670
Civil Service Commission.....	4,792,379	5,224,776	6,226,358
Defence Production.....	37,288,755¹	48,506,997¹	52,300,263¹
Capital assistance to defence industry.....	1,903,979	1,476,243	763,734
Other.....	35,384,776	47,030,754	51,631,629
External Affairs.....	85,196,666	97,022,596	131,186,586
Finance.....	1,354,779,838	1,406,434,612	1,588,075,367
Public Debt Charges—			
Interest on public debt.....	881,598,898	954,643,790	1,012,097,143
Annual amortization of bond discounts and commissions ..	52,682,416	36,313,021	36,365,642
Servicing of public debt.....	1,683,487	996,752	1,030,443
Cost of loan flotation.....	1,922,438	1,876,812	1,797,469
Totals, Public Debt Charges.....	917,787,839	993,729,375	1,051,290,597

For footnotes, see end of table.

10.—Expenditure of the Federal Government, Years Ended Mar. 31, 1963-65—concluded

Expenditure	1963	1964	1965
	\$	\$	\$
Finance—concluded			
Fiscal, tax-sharing, subsidy and other payments to provinces..	275,302,387	254,330,006	358,557,022
Contribution to Public Service Superannuation Account.....	51,076,449	54,015,227	55,622,340
Other.....	110,612,763	104,360,004	122,805,403
Fisheries.....	23,292,700	23,716,314	25,593,261
Forestry.....	31,840,093 ⁴	41,815,947 ⁴	49,754,438 ⁴
Governor General and Lieutenant-Governors.....	467,638	524,159	648,703
Industry.....	433,689	696,257	3,288,581
Insurance.....	1,422,120	1,435,005	1,445,861
Justice, including Penitentiaries.....	37,020,572 ⁵	40,995,992 ⁵	53,529,441 ⁵
Labour.....	348,291,775	280,383,807	283,724,837
Unemployment Insurance Act, administration and Govern- ment contribution.....	105,376,874	108,067,948	116,447,270
Other.....	242,914,801	172,315,859	167,277,567
Legislation.....	8,108,063	12,923,599	14,214,867
Mines and Technical Surveys.....	71,130,401	67,759,325	75,237,766
National Defence.....	1,571,044,079	1,683,471,003 ⁶	1,535,634,697
National Film Board.....	5,610,630	5,743,931	6,353,633
National Gallery.....	987,271	1,067,949	1,303,734
National Health and Welfare.....	1,122,448,257	1,203,854,597	1,297,586,299
General health grants to provinces.....	50,895,363	52,994,953	56,699,709
Family allowances.....	531,566,349	538,312,263	545,775,281
Old age assistance, blind persons' and disabled persons' allowances ⁷	62,695,198	64,402,622	73,981,150
Unemployment assistance.....	96,476,627	107,370,707	107,563,374
Contributions under the Hospital Insurance and Diagnostic Services Act.....	336,672,778	392,244,235	433,882,420
Other.....	44,741,942	48,529,857	79,694,415
National Research Council, including the Medical Research Council.....	40,596,727	47,259,773	56,641,725
National Revenue.....	78,602,634	82,995,521	86,908,544
Northern Affairs and National Resources.....	86,377,092	77,334,019	80,894,715
Post Office.....	189,344,410	206,894,516	210,458,702
Privy Council, including Prime Minister's Office.....	2,131,902	2,929,115	4,568,571
Public Archives and National Library.....	1,035,471	1,112,723	1,507,268
Public Printing and Stationery.....	2,038,633 ⁸	2,147,045 ⁸	2,732,686 ⁸
Public Works.....	162,730,246	167,000,704	234,864,783
Trans-Canada Highway.....	33,057,931	41,325,737	76,280,533
Other.....	129,672,315	125,674,967	163,584,250
Representation Commissioner's Office.....	—	37,006	224,521
Royal Canadian Mounted Police.....	65,424,359	66,899,479	76,198,876
Secretary of State.....	4,782,903 ⁹	7,732,868 ⁹	22,743,754 ⁹
Trade and Commerce.....	65,767,556 ¹⁰	73,584,061 ¹⁰	90,042,849 ¹⁰
Transport.....	416,019,472	423,257,874	466,947,594
Veterans Affairs.....	335,602,449	333,739,881	353,037,667
Grand Totals, Expenditure.....	6,570,341,805	6,872,401,519	7,218,274,552

¹ See footnote ¹⁰ below.² Included in Forestry (1963, \$14,462,357; 1964, \$18,750,078; 1965, \$19,114,857).³ Includes Directorate of Printing (1963, \$1,938,808; 1964, \$1,946,288; 1965, \$2,291,212), formerly in Public Printing and Stationery, and Emergency Measures Organization (1963, \$6,369,909; 1964, \$6,942,249; 1965, \$7,653,368), formerly in the Privy Council, National Defence and National Health and Welfare.⁴ See footnote ² above. ⁵ Includes patents, copyrights and trade marks (1963, \$2,488,917; 1964, \$2,595,856; 1965, \$2,899,506), formerly in Secretary of State.⁶ Includes special contribution to Canadian Forces Superannuation Account \$76,500,000.⁷ Pensions under the Old Age Security Act, 1951 (effective January 1952) are paid out of the Old Age Security Fund account and are not recorded under departmental expenditure.⁸ See footnote ³ above. ⁹ See footnote ³ above.¹⁰ Includes assistance re storage costs of grain (1963, \$35,256,382; 1964, \$39,588,168; 1965, \$34,022,947), formerly in Agriculture.

11.—Statement of Assets and Liabilities of the Government of Canada, as at Mar. 31, 1962-65

SOURCES: *Public Accounts of Canada* and *Canada Gazette*

Item	1962	1963	1964	1965
	\$	\$	\$	\$
Assets				
Current Assets—				
Cash.....	895,321,334	511,347,154	984,642,872	850,282,134
Departmental Working Capital Advances and Revolving Funds.....	223,379,565	242,267,010	168,806,488	134,971,754
Securities held for the securities investment account at amortized cost.....	94,608,163	33,480,163	99,859,788	57,119,872
Other current assets.....	32,707,390	32,316,719	33,753,992	29,134,994
Totals, Current Assets.....	1,246,016,452	820,411,046	1,287,063,140	1,071,508,754
Advances to the Exchange Fund Account....	1,793,000,000	2,736,000,000	2,601,000,000	2,621,000,000
Sinking fund and other investments held for retirement of unmatured debt.....	19,432,331	22,311,845	—	5,441,198
Investment in special United States of America securities—Columbia River Treaty.....	—	—	—	219,479,161
Loans to and Investments in Crown Corporations.....	3,985,329,459	4,468,119,368	4,584,194,507	4,996,301,176
Loans to national governments.....	1,339,796,827	1,210,776,466	1,195,684,799	1,206,576,551
Other Loans and Investments—				
Subscriptions to Capital of, and working Capital Advances and Loans to, International Organizations.....	659,935,897	693,997,679	702,130,003	709,753,536
Loans to provincial governments.....	97,879,073	116,817,626	113,651,578	98,435,807
Veterans' Land Act advances (less reserve for conditional benefits).....	177,355,101	196,018,731	216,970,307	231,322,169
Miscellaneous.....	58,693,017	103,820,343	165,064,212	99,869,916
Totals, Other Loans and Investments.....	993,863,088	1,110,654,379	1,197,816,100	1,139,381,428
Securities held in trust.....	25,826,647	26,016,103	38,881,823	53,059,934
Deferred Charges—				
Unamortized portions of actuarial deficiencies—				
Canadian forces superannuation account....	326,300,000	524,849,000	—	53,761,600
Public service superannuation account.....	276,661,000	276,661,000	276,661,000	39,920,800
Royal Canadian Mounted Police superannuation account.....	3,533,000	3,533,000	—	4,153,600
Unamortized loan flotation costs.....	121,332,197	131,601,094	123,699,586	110,749,442
Totals, Deferred Charges.....	727,826,197	936,644,094	400,360,586	208,585,442
Suspense accounts.....	136,101	136,100	141,392	—
Capital assets.....	1	1	1	1
Inactive loans and investments.....	94,824,381	94,824,381	94,824,381	94,824,381
Total Recorded Assets.....	10,226,061,484	11,425,893,783	11,399,966,729	11,616,158,026
Less: Reserve for losses on realization of assets.....	—546,884,065	—546,884,065	—546,884,065	—546,884,065
Net recorded assets.....	9,679,677,419	10,879,509,718	10,853,582,664	11,069,773,961
Net debt.....	13,228,137,045	13,919,769,972	15,070,149,452	15,504,472,544
	22,907,814,464	24,799,279,690	25,923,732,116	26,574,246,505

**11.—Statement of Assets and Liabilities of the Government of Canada, as at
Mar. 31, 1962-65—concluded**

Item	1962	1963	1964	1965
	\$	\$	\$	\$
Liabilities				
Current and Demand Liabilities—				
Outstanding treasury cheques.....	265,658,447	266,548,686	319,894,410	315,898,029
Accounts payable.....	280,711,177	267,364,119	342,673,020	363,925,315
Non-interest-bearing notes payable on demand.....	372,031,620	757,284,519	586,996,025	367,897,531
Matured debt outstanding.....	36,438,562	32,466,821	26,820,209	19,140,916
Interest due and outstanding.....	73,845,656	79,460,893	91,893,489	102,034,032
Interest accrued.....	174,601,049	196,973,991	215,973,372	231,173,522
Other current liabilities.....	30,794,396	31,379,226	35,710,909	33,367,648
Totals, Current and Demand Liabilities.....	1,234,080,907	1,631,473,255	1,619,961,434	1,433,436,993
Deposit and trust accounts.....	266,624,103	225,202,751	196,454,123	272,311,590
Annuity, Insurance and Pension Accounts—				
Government annuities.....	1,235,305,209	1,264,436,143	1,284,261,927	1,303,136,883
Canadian forces superannuation account.....	1,279,239,154	1,605,796,692	1,821,524,901	2,028,122,459
Public service superannuation account.....	1,586,929,399	1,724,116,105	1,856,407,623	2,161,828,359
Miscellaneous.....	144,468,047	152,667,928	168,859,360	182,753,152
Totals, Annuity, Insurance and Pension Accounts.....	4,245,941,809	4,747,016,868	5,131,053,811	5,675,840,853
Undisbursed Balances of Appropriations to Special Accounts—				
Colombo Plan Fund.....	77,625,513	85,325,167	..	..
Miscellaneous.....	37,509,854	34,626,531	..	..
Totals, Undisbursed Balances of Appropriations to Special Accounts.....	115,135,367	119,951,698	111,601,270	95,702,607
Deferred credits and suspense accounts.....	100,296,144	113,793,787	124,564,449	118,740,283
Unmatured Debt—				
Bonds—				
Payable in Canada.....	14,930,570,600	15,385,847,250	16,133,692,000	16,461,809,150
Payable in London.....	31,990,534	34,584,052	—	—
Payable in New York.....	98,175,000	376,405,029	376,405,029	376,405,029
Treasury Bills and Notes—				
Payable in Canada.....	1,885,000,000	2,165,000,000	2,230,000,000	2,140,000,000
Totals, Unmatured Debt.....	16,945,736,134	17,961,836,331	18,740,097,029	18,978,214,179
Totals, Liabilities.....	22,907,814,464	24,799,279,690	25,923,732,116	26,574,246,505

Guaranteed Debt.—In addition to the direct debt already dealt with, the Government of Canada has assumed certain contingent liabilities. The major categories of this indirect or contingent debt are the guarantee of insured loans under the National Housing Act, the guaranteed bonds and debentures of the Canadian National Railways and the guarantee of deposits maintained by the chartered banks in the Bank of Canada. The remainder consists chiefly of guarantees of loans made by chartered banks to the Canadian Wheat Board and to farmers and veterans for certain authorized purposes and of guarantees under the Export Credits Insurance Act.

12.—Guaranteed Debt of the Government of Canada, as at Mar. 31, 1964

SOURCE: *Public Accounts of Canada*

Item	Amount of Guarantee Authorized	Amount Outstanding in the Hands of the Public as at Mar. 31, 1964 ¹
	\$	\$
Railway Securities Guaranteed as to Principal and Interest—		
Canadian National Ry. Co. 5½ per cent bonds due 1964.....	193,819,500	193,819,500
Canadian National Ry. Co. 3 per cent bonds due 1966.....	35,000,000	35,000,000
Canadian National Ry. Co. 2½ per cent bonds due 1967.....	50,000,000	50,000,000
Canadian National Ry. Co. 4½ per cent bonds due 1967.....	75,000,000	72,300,000
Canadian National Ry. Co. 5 per cent bonds due 1968.....	60,000,000	55,800,000
Canadian National Ry. Co. 2½ per cent bonds due 1969.....	70,000,000	70,000,000
Canadian National Ry. Co. 2½ per cent bonds due 1971.....	40,000,000	40,000,000
Canadian National Ry. Co. 5½ per cent bonds due 1971.....	5,180,500	5,180,500
Canadian National Ry. Co. 3½ per cent bonds due 1974.....	200,000,000	200,000,000
Canadian National Ry. Co. 2½ per cent bonds due 1975 ²	6,486,480	6,486,480
Canadian National Ry. Co. 5 per cent bonds due 1977.....	90,000,000	84,150,000
Canadian National Ry. Co. 4 per cent bonds due 1981.....	300,000,000	300,000,000
Canadian National Ry. Co. 5½ per cent bonds due 1985.....	100,000,000	99,500,000
Canadian National Ry. Co. 5 per cent bonds due 1987.....	175,000,000	165,375,000
Other Guarantees—		
Deposits maintained by chartered banks in Bank of Canada.....	Unstated	840,037,147
Loans made by lenders under Part IV of the National Housing Act, 1954, for home extensions and improvements.....	25,000,000	14,490,893 ³
Insured loans made by approved lenders under the National Housing Act, 1954	6,000,000,000	4,499,000,000 ⁴
Insurance and guarantees issued or approved under Section 21 and 21A of the Exports Credits Insurance Act.....	700,000,000	378,095,892
Loans made by chartered banks under the Farm Improvement Loans Act..	Indeterminate	59,510,107
Loans made by chartered banks under the Veterans Business and Professional Loans Act.....	Indeterminate	28,078
Loans made by chartered banks under the Prairie Grain Producers' Interim Financing Act, 1956.....	Indeterminate	689
Loans made by chartered banks and credit unions under the Fisheries Im- provement Loans Act.....	Indeterminate	196,005
Loans made by chartered banks under the Small Businesses Loans Act.....	30,000,000	7,990,537
Loans made by chartered banks to the Canadian Wheat Board.....	100,000,000	151,313,429

¹ In addition, the government has an indeterminate contingent liability in respect of rental guarantee contracts which in 1963 amounted to approximately \$14,786,770. Against this amount was a reserve of \$3,933,453 held by Central Mortgage and Housing Corporation.

² These contingent liabilities are expressed in Canadian dollars; they are payable solely in United States dollars and are converted on the basis of \$1 U.S. = \$1.08108 Canadian.

³ As at fiscal years ended between Oct. 31 and Dec. 31, 1963.

⁴ As reported (in accordance with Sect. 45, National Housing Loan Regulations) by approved lenders at Dec. 31, 1963.

Table 13 summarizes the national debt position during the period 1956-65 as to interest and amount outstanding. Details of unmatured debt and treasury bills outstanding and information on new security issues of the Federal Government may be found in the *Public Accounts of Canada*. They are summarized by standard classification in DBS publication *Financial Statistics of the Government of Canada* (Catalogue No. 68-211).

13.—Summary of the Public Debt and Interest Payments Thereon, Years Ended Mar. 31, 1956-65

NOTE.—Statistics for 1867-1913 are given in the 1942 Year Book, p. 775; for 1914-35 in the 1947 edition, p. 972; for 1936-48 in the 1951 edition, p. 1009; and for 1949-55 in the 1959 edition, p. 1063.

Year Ended Mar. 31—	Gross Debt	Net Active Assets	Net Debt	Net Debt per Capita ¹	Increase or Decrease of Net Debt during Year	Interest Paid on Debt	Interest Paid per Capita ²
	\$	\$	\$	\$	\$	\$	\$
1956.....	19,124,232,779	7,843,863,815	11,280,368,964	701.47	17,288,810	492,624,067	31.38
1957.....	18,335,797,515	7,328,146,357	11,007,651,158	662.71	-272,717,806	520,189,398	32.35
1958.....	18,418,541,848	7,372,267,958	11,046,273,890	646.74	38,622,732	539,207,260	32.46
1959.....	20,246,773,669	8,568,383,809	11,678,389,860	667.99	632,115,970	606,615,887	35.52
1960.....	20,986,367,010	8,897,173,007	12,089,194,003	676.51	410,804,143	735,630,175	42.08
1961.....	21,602,836,960	9,165,721,865	12,437,115,095	681.93	347,921,092	756,664,228	42.34
1962.....	22,907,814,464	9,679,677,419	13,228,137,045	712.34	791,021,950	802,919,207	44.02
1963.....	24,799,279,690	10,879,509,718	13,919,769,972	736.65	691,632,927	881,598,898	47.47
1964.....	25,923,732,116	10,853,582,664	15,070,149,452	783.39	1,150,379,480	954,543,790	50.52
1965.....	26,574,246,505	11,069,773,961	15,504,472,544	792.22	434,323,092	1,012,097,143	52.62

¹ Based on the official estimates of population for June 1 of the year indicated.

² Based on the official

estimates of population for June 1 of the year immediately preceding the one indicated.

Subsection 3.—Revenue from Taxation

The incidence of Federal Government taxation is dealt with in Section 2. This Subsection includes statistical data on revenue received from individual income tax, corporation tax, estate tax, excise duties and excise taxes; customs receipts constitute a single item in the *Public Accounts of Canada* and are not included here.

Individual and Corporation Income Tax

Statistics of income tax collections are gathered at the time the payments are made and are therefore up to date. Over 85 p.c. of individual taxpayers are wage or salary earners who have almost the whole of their tax liability deducted at the source by their employers. All other taxpayers are required to pay most of their estimated tax during the taxation year. Thus, the greater part of the tax is collected during the same year in which the related income is earned and only a limited residue remains to be collected when the returns are filed. The collections for a given fiscal year include tax deductions and instalments for twelve months, embracing portions of two taxation years, and a mixture of year-end payments for the first of these years and for the preceding year; they cannot therefore be closely related to the statistics for a given taxation year. As little information about a taxpayer is received when the payment is made and as a single cheque from one employer may frequently cover the tax payment of hundreds of employees, the payments cannot be statistically related to taxpayers by occupation or income. Descriptive classifications of taxpayers are available only from tax returns but collection statistics, if interpreted with the current tax structure and the above factors in mind, indicate the trend of income in advance of the final compilation of statistics.

The statistics given in Table 14 pertain to tax collections by the Taxation Division of the Department of National Revenue. The collections are for fiscal years ended Mar. 31.

14.—Taxes Collected by the Taxation Division of the Department of National Revenue, Years Ended Mar. 31, 1956-65

NOTE.—Figures for 1917-34 are given in the 1947 Year Book, pp. 999-1000; for 1935-48 in the 1951 Year Book, p. 994; and for 1949-55 in the 1956 edition, p. 1066.

Year Ended Mar. 31—	Income Tax ¹			Estate Tax	Total Collections
	Individual ²	Corporation	Total		
	\$	\$	\$	\$	\$
1956.....	1,354,275,414	1,081,055,818	2,435,331,232	66,607,026	2,501,938,258
1957.....	1,601,897,580	1,335,636,914	2,937,534,494	79,709,197	3,017,243,691
1958.....	1,699,123,470	1,295,470,725	2,994,594,195	71,607,758	3,066,201,953
1959.....	1,561,062,606	1,075,878,164	2,636,940,770	72,535,140	2,709,475,910
1960.....	1,825,547,063	1,234,215,702	3,059,762,765	88,430,705	3,148,193,470
1961.....	2,028,733,394	1,380,128,380	3,408,861,774	84,879,372	3,493,741,146
1962.....	2,200,573,190	1,303,502,634	3,504,075,824	84,579,382	3,588,655,206
1963 ³	2,399,882,273	1,362,655,419	3,762,537,692	87,143,312	3,849,681,004
1964 ³	2,579,083,811	1,472,175,333	4,051,259,144	90,671,283	4,141,930,427
1965 ³	3,047,590,003	1,804,507,172	4,852,097,176	88,625,641	4,940,722,817

¹ Includes old age security tax.

² Includes "non-resident" taxes.

³ Includes amounts of provincial

income tax collected by the Taxation Division.

Individual Income Tax Statistics.—Individual income tax statistics are presented in Tables 15 to 17 on a calendar-year basis and are compiled from a sample of all returns received. Taxpayers and amounts of income and tax are shown for selected cities and by occupation and income classes.

15.—Number of Taxpayers and Amounts of Income and Tax, by Selected Cities, 1962 and 1963

City and Province	1962			1963		
	Taxpayers	Total Income Assessed	[Tax Payable ¹	Taxpayers	Total Income Assessed	Tax Payable ¹
	No.	\$'000	\$'000	No.	\$'000	\$'000
Brantford, Ont.....	18,993	82,705	8,624	22,837	99,308	10,281
Calgary, Alta.....	95,744	460,284	51,454	95,957	458,604	50,529
Edmonton, Alta.....	114,077	507,981	51,683	118,479	545,783	57,040
Fort William and Port Arthur, Ont..	32,747	143,200	13,589	32,864	146,735	14,120
Halifax, N.S.....	40,478	171,841	16,853	37,436	161,302	16,132
Hamilton, Ont.....	125,187	602,540	63,103	132,688	652,172	71,173
Hull, Que.....	24,422	102,161	7,542	26,858	115,739	8,842
Kitchener and Waterloo, Ont.....	39,629	173,306	17,701	43,608	198,072	21,297
London, Ont.....	62,472	280,233	29,301	65,911	299,149	32,120
Montreal, Que.....	621,575	2,852,182	265,862	623,880	2,971,050	283,931
New Westminster, B.C.....	34,388	156,177	14,451	34,391	160,728	15,456
Niagara Falls, Ont.....	16,194	74,225	7,047	17,286	77,288	7,359
Oshawa, Ont.....	25,687	127,018	13,960	27,293	143,579	17,296
Ottawa, Ont.....	112,381	540,297	59,908	117,329	582,356	66,936
Quebec, Que.....	78,004	331,250	27,144	87,163	393,856	33,618
Regina, Sask.....	39,607	172,127	18,103	42,636	194,320	21,577
St. Catharines, Ont.....	32,479	154,387	15,742	34,955	169,092	17,560
St. John's, Nfld.....	22,851	92,473	8,800	23,816	102,889	10,204
Saint John, N.B.....	23,533	91,836	7,595	24,280	99,128	8,761
Saskatoon, Sask.....	31,939	134,260	13,344	32,177	141,910	14,575
Sherbrooke, Que.....	19,275	77,346	5,760	21,050	88,678	6,877
Sudbury and Copper Cliff, Ont.....	33,437	159,781	15,582	31,471	150,128	14,454
Sydney and Glace Bay, N.S.....	19,730	79,540	5,832	21,698	93,342	7,161
Toronto, Ont.....	690,538	3,268,218	386,390	720,714	3,500,778	425,412
Vancouver (incl. West Van.), B.C.....	222,627	1,075,271	119,055	234,042	1,148,052	131,282
Victoria, B.C.....	46,776	211,095	20,813	49,301	229,759	23,480
Windsor, Ont.....	49,758	237,845	23,632	54,194	271,000	28,630
Winnipeg, Man.....	153,846	690,044	74,017	165,584	736,369	80,032
Other localities.....	1,847,853	7,714,603	658,875	1,987,475	8,490,441	746,907
Totals.....	4,681,227	20,764,226	2,021,762	4,927,373	22,421,607	2,243,042

¹ Includes old age security tax.

**16.—Number of Taxpayers and Amounts of Income and Tax, by Occupational Class,
1962 and 1963**

Occupational Class	1962			1963		
	Taxpayers	Total Income Assessed	Tax Payable ¹	Taxpayers	Total Income Assessed	Tax Payable ¹
	No.	\$'000	\$'000	No.	\$'000	\$'000
Farmers.....	86,585	389,315	34,440	92,026	421,682	38,388
Fishermen.....	4,836	25,428	2,873	4,177	20,823	2,136
Professionals—						
Accountants.....	4,390	49,092	9,050	4,590	50,462	9,293
Medical doctors.....	14,169	257,107	60,165	15,019	291,869	71,816
Dentists.....	4,653	63,780	12,389	5,092	69,653	13,956
Lawyers and notaries.....	7,703	118,348	27,712	7,728	125,832	30,150
Engineers and architects.....	2,546	37,033	8,583	2,594	38,880	9,001
Employees.....	4,090,943	17,293,679	1,570,151	4,295,491	18,687,839	1,750,407
Salesmen.....	54,441	324,718	36,557	51,311	322,740	38,057
Business proprietors.....	195,599	1,058,568	117,485	214,007	1,167,837	132,553
Investors.....	133,052	819,863	113,161	147,424	892,669	118,528
Pensioners.....	51,220	164,795	9,773	61,912	200,188	12,245
All others.....	31,090	162,500	19,422	26,002	131,133	17,012
Totals.....	4,681,227	20,764,226	2,021,762	4,927,373	22,421,607	2,243,042

¹ Includes old age security tax.

17.—Individual Income Tax Statistics, by Income Class, 1962 and 1963

Taxable Income	Taxpayers		Total Income Assessed		Tax Payable ¹		Average Tax ¹	
	1962	1963	1962	1963	1962	1963	1962	1963
	No.	No.	\$'000	\$'000	\$'000	\$'000	\$	\$
Under \$1,000.....	30,811	36,785	13,918	17,306	2,228	2,486	72	68
\$ 1,000 and under \$ 2,000....	593,160	637,433	910,079	995,920	33,755	36,466	57	57
\$ 2,000 " " \$ 3,000....	874,307	896,573	2,157,813	2,254,275	126,589	136,432	145	152
\$ 3,000 " " \$ 5,000....	1,828,140	1,845,210	7,147,818	7,321,585	500,687	529,687	274	287
\$ 5,000 " " \$10,000....	1,173,963	1,306,679	7,481,337	8,418,427	732,656	835,273	624	639
\$10,000 " " \$25,000....	160,128	182,082	2,205,894	2,500,980	370,411	420,551	2,313	2,310
\$25,000 " " \$50,000....	17,112	18,755	565,259	616,935	154,322	172,212	9,070	9,182
\$50,000 or over.....	3,606	3,856	282,108	296,179	101,114	109,935	28,040	28,510
Totals.....	4,681,227	4,927,373	20,764,226	22,421,607	2,021,762	2,243,042	432	455

¹ Includes old age security tax.

18.—Summary Statistics for Corporations Reporting a Profit, Taxation Years 1962 and 1963

Item	1962			1963		
	Corpora- tions Reporting	Current Year Profit	Total Tax Declared ¹	Corpora- tions Reporting	Current Year Profit	Total Tax Declared ¹
	No.	\$'000,000	\$'000,000	No.	\$'000,000	\$'000,000
Active taxable corporations—exclud- ing co-operatives and Crown cor- porations.....	74,567	3,897.3	1,363.3	80,516	4,208.8	1,450.9
Inactive corporations.....	2,030	1.6	0.2	5,073	2.2	0.2
Co-operatives.....	1,638	7.7	1.7	1,715	8.4	1.8
Crown corporations.....	6	36.1	17.9	6	32.6	16.2
Totals, Taxable Corporations.....	78,241	3,942.7	1,383.2	87,310	4,252.0	1,469.1
Personal corporations.....	2,262	37.5	—	3,073	43.4	—
Other exempt corporations.....	3,416	41.7	—	4,032	53.4	—
Totals, Taxable and Exempt.....	83,919	4,021.9	1,383.2	94,415	4,348.8	1,469.1

¹ Includes old age security tax.

19.—Distribution of Active Taxable Corporations Reporting a Profit, by Industry and Province, Taxation Years 1962 and 1963

Industrial Group and Province	1962			1963		
	Corpora- tions Reporting	Current Year Profit	Total Tax Declared ¹	Corpora- tions Reporting	Current Year Profit	Total Tax Declared ¹
	No.	\$'000,000	\$'000,000	No.	\$'000,000	\$'000,000
Industrial Group						
Agriculture, fishing and forestry....	1,658	24.5	5.6	1,695	26.6	6.4
Mining, quarrying and oil.....	775	204.2	82.6	852	236.8	99.9
Manufacturing.....	13,862	1,854.0	691.3	14,088	2,040.8	742.9
Construction.....	8,010	139.8	29.3	8,297	135.0	29.2
Transportation, storage and other utilities.....	3,056	426.9	175.3	3,886	458.3	175.8
Wholesale trade.....	11,725	305.9	90.4	12,097	331.1	97.2
Retail trade.....	13,201	270.0	85.1	14,091	285.2	89.7
Finance, insurance and real estate...	14,355	550.8	174.9	16,324	563.0	177.8
Service.....	7,925	121.2	28.8	9,686	132.1	31.9
Totals.....	74,567	3,897.3	1,363.3	80,516	4,208.8	1,450.9
Province						
Newfoundland.....	787	31.4	13.1	922	38.2	15.6
Prince Edward Island.....	256	11.7	2.5	274	6.4	1.8
Nova Scotia.....	1,959	52.4	17.6	2,078	48.0	16.5
New Brunswick.....	1,391	42.2	13.7	1,234	38.1	13.1
Quebec.....	18,534	1,209.1	417.2	20,350	1,233.5	414.9
Ontario.....	27,199	1,817.0	633.8	29,213	2,048.2	697.4
Manitoba.....	3,573	120.1	45.4	3,927	129.1	49.0
Saskatchewan.....	2,266	38.9	13.0	2,365	44.0	14.2
Alberta.....	7,298	216.4	73.6	8,060	233.1	82.9
British Columbia.....	11,304	358.1	133.4	12,088	390.2	145.5

¹ Includes old age security tax.

20.—Corporations Reporting a Profit, by Income Class and Size of Total Assets, Taxation Years 1962 and 1963

NOTE.—Figures are for corporations described as "fully tabulated", which means corporations for which sufficient information has been received for complete analyses.

Income Class and Size of Assets	1962		1963	
	Corpora- tions Reporting	Current Year Profit	Corpora- tions Reporting	Current Year Profit
	No.	\$'000,000	No.	\$'000,000
Income Class				
Under \$5,000.....	30,491	64.3	33,465	55.2
\$5,000 under \$10,000.....	13,207	88.9	14,301	97.2
\$10,000 under \$25,000.....	16,958	262.3	16,204	248.1
\$25,000 under \$50,000.....	8,015	265.7	9,498	316.5
\$50,000 under \$100,000.....	2,122	147.0	2,468	171.9
\$100,000 under \$250,000.....	1,636	254.7	1,782	279.7
\$250,000 under \$500,000.....	664	232.8	728	253.3
\$500,000 under \$1,000,000.....	341	236.9	413	282.8
\$1,000,000 under \$5,000,000.....	349	703.0	391	792.3
\$5,000,000 or over.....	96	1,411.8	98	1,486.2
Totals.....	73,879	3,667.4	79,348	3,983.3
Size of Assets				
Under \$100,000.....	35,328	190.7	36,333	193.1
\$100,000 under \$250,000.....	18,955	237.7	20,842	245.8
\$250,000 under \$500,000.....	9,093	189.5	10,445	218.7
\$500,000 under \$1,000,000.....	4,987	186.7	5,625	216.2
\$1,000,000 under \$5,000,000.....	4,130	487.9	4,593	534.6
\$5,000,000 under \$10,000,000.....	614	227.9	668	263.5
\$10,000,000 under \$25,000,000.....	413	341.4	443	361.1
\$25,000,000 under \$100,000,000.....	258	613.3	276	596.1
\$100,000,000 or over.....	101	1,192.4	123	1,354.2

Succession Duties and Estate Taxes

A history of succession duties is given in the 1956 Year Book, pp. 1064-1068. From Jan. 1, 1947 to Mar. 31, 1963, only Ontario and Quebec among the provinces levied succession duties, the other provinces having leased this field to the Federal Government under the terms of the 1947, 1952 and 1957 tax agreements (see p. 964). However, British Columbia re-entered the field, effective for all deaths occurring on or after Apr. 1, 1963. The incidence of the estate tax is discussed at pp. 970-971.

Federal revenue from succession duties and estate taxes in the year ended Mar. 31, 1964 amounted to \$90,671,283. In the same year, Quebec's revenue from succession duties amounted to \$36,393,000 and Ontario's revenue from succession duties to \$44,121,000.

Excise Taxes

Excise taxes collected by the Excise Division of the Department of National Revenue are given for the years ended Mar. 31, 1963 to 1965 in Table 21.

21.—Excise Taxes Collected, by Commodity, Years Ended Mar. 31, 1963-65

Commodity	1963	1964	1965
	\$	\$	\$
Sales tax ^{1,2}	805,970,471	946,054,797	1,204,609,934
Other Excise Taxes—			
Automobiles.....	1,016	194	239
Cigarettes, tobacco and cigars.....	217,807,695	226,938,710	218,343,946
Electric power export.....	463,396	126,937	—
Jewellery, watches, ornaments, etc.....	5,793,140	6,353,314	6,864,180
Matches and lighters.....	1,157,962	1,261,797	1,181,009
Television sets, radios, tubes and phonographs.....	19,933,817	22,009,701	23,521,713
Toilet preparations.....	10,142,400	11,125,893	12,790,734
Wines.....	3,727,029	3,814,127	4,092,094
Sundry commodities.....	1,236,911	1,301,810	1,426,553
Interest and penalties.....	491,123	814,291	1,208,554
Less refunds and drawbacks.....	-376,416	-331,330	-346,938
Total	1,066,348,544	1,219,470,241	1,473,692,018

¹ Excludes tax credited to the old age security fund.

² Net after deduction of refunds and drawbacks.

Excise Duties

Gross excise duties collected are given in the following statement for the years ended Mar. 31, 1963 and 1964. The totals do not agree with net excise duties as shown in Table 9 because refunds and drawbacks are included. A drawback of 99 p.c. of the duty may be granted when domestic spirits, testing not less than 50 p.c. over proof, are delivered in limited quantities for medicinal or research purposes to universities, scientific or research laboratories, public hospitals, or health institutions in receipt of federal and provincial government aid.

Item	1963	1964
	\$	\$
Spirits.....	122,020,603	129,399,249
Beer or malt liquor.....	98,097,105	102,914,379
Tobacco and cigarettes.....	165,875,416	164,804,918
Cigars.....	731,736	836,018
Licences.....	33,581	35,770
TOTALS	386,758,441	397,990,334

Section 4.—Federal-Provincial Conditional Grants and Shared-Cost Programs*

During the past decade there has been a rapid increase in federal expenditures on joint federal-provincial programs. These programs take three forms: (1) the Federal Government contributes financial assistance to a program administered by a province; (2) the federal and provincial governments each assume the sole responsibility for the construction, administration and financing of separate aspects of a joint project; or (3) the province contributes financially to a joint program administered by the Federal Government.

The first category of joint programs is by far the most common and such programs are commonly called conditional grant programs. They are characterized by the Federal Government agreeing to make money available to a province on certain conditions, such

*Prepared (August 1965) in the Federal-Provincial Relations Division, Department of Finance, Ottawa.

Additional Readings:—

Donald V. Smiley, *Conditional Grants and Canadian Federalism* (Canadian Tax Papers No. 32), Toronto, Canadian Tax Foundation, February 1963. Federal-Provincial Relations Division, Department of Finance, *Federal-Provincial Conditional Grant and Shared-Cost Programmes, 1962*, Ottawa, Queen's Printer, October 1963, \$3 (Catalogue No. F2-2563). Appendix to House of Commons Debates of Sept. 10, 1964. Statutes of Canada, 1964-65, c. 54.

conditions always specifying the field, service or project to which the money must be applied. In addition, the province may be required to make a financial contribution to the program, to provide certain facilities, and to maintain the program at certain specified standards. The various programs in the welfare field are good examples of conditional grant programs. Under the old age assistance program, the Federal Government undertakes to share with a province the cost of assistance to persons who have attained the age of 65 years to the extent of 50 p.c. of a monthly assistance allowance of \$75; the recipient, besides being above a certain age, must have been a resident of Canada for 10 years and his income, including the assistance, must not be in excess of \$1,260 a year if unmarried, \$2,220 if married, and \$2,580 if married to a blind spouse. The provinces are entrusted with the administration of the program and are required to bear the administrative costs as well as one half of the monthly allowance.

Although the old age assistance program, with its specification of the standards for eligibility, the level of the allowance and the federal share of the joint costs, is characteristic of conditional grant programs, there are some in which the conditions are nominal. For example, under the employment assistance program the Federal Government undertakes to share one half of the cost of relief paid to social assistance recipients, the scale and conditions of the assistance to be determined by the provinces. In general, it may be said that the old age assistance program conforms to the traditional pattern of conditional grants, whereas the unemployment assistance program marks a newer approach in which flexibility and adaptability to local circumstances has been allowed to modify insistence on a national uniform standard.

The federal payments to the provinces under the conditional grant programs increased from \$75,000,000 in the year ended Mar. 31, 1954, to an estimated \$935,000,000 in 1964-65. The increase was attributable largely to the introduction of the unemployment assistance program in 1955 and the hospital insurance and diagnostic services program in 1958, to the increase in the level of old age assistance, disabled persons' and blind persons' allowances, and to the enlargement and reorientation of the vocational and technical training program (see Index). In 1964-65, federal contributions to the programs under the unemployment assistance and the hospital insurance and diagnostic services programs were estimated at \$107,000,000 and \$433,000,000, respectively.

Joint programs in the second category—those in which the federal and provincial governments accept sole responsibility for portions of a total project—are not numerous and are generally of a public works type. The irrigation projects carried out jointly by the Prairie Farm Rehabilitation Administration and the Province of Alberta on the St. Mary's and Bow Rivers in southern Alberta are of this nature, as are the bridges recently built or under construction between Cross Point in Quebec and Campbellton in New Brunswick, or between Ottawa in Ontario and Hull in Quebec. In the St. Mary's irrigation project, the Federal Government has undertaken the responsibility for the construction of all main reservoirs, large dams and connecting works, and Alberta has assumed responsibility for the construction of the distribution system and the development and colonization of the new irrigable areas. (See also p. 447.)

Joint programs in the third category are also few in number and the sums of money involved are seldom large. The Fraser River Board and the South Saskatchewan River Dam are two examples. The Fraser River Board was established by Canada and British Columbia in 1955 to investigate flood control and hydro-electric power generation on the Fraser River. Canada undertook to pay the costs of the Board in the first instance with British Columbia subsequently reimbursing Canada for half of the expenditures of the Board. In the case of the South Saskatchewan River project, Saskatchewan is to reimburse Canada for 25 p.c. (up to a maximum of \$25,000,000) of the federal expenditure on the dam and reservoir. In the year ended Mar. 31, 1964, British Columbia's share of the joint expenditures on the Fraser River Board amounted to \$64,335, and Saskatchewan's share of the expenditures on the South Saskatchewan River project was \$3,578,383.

The increasing number and extent of conditional grant and shared-cost programs has occasioned some provincial criticisms and misgivings. It has been argued that the preponderant occupancy of the direct tax field in the postwar years by the Federal Government encouraged the growth of such programs as the provinces were denied the revenues that would have enabled them to provide equivalent programs themselves. At the 1964 Federal-Provincial Conference, the Province of Quebec proposed that a province be given the option to assume full administrative and financial responsibility for certain joint programs on the Federal Government making available to that province the necessary additional tax room. The "contracting-out" proposal was referred to a federal-provincial committee of officials for consideration. As a consequence of their consideration, the Prime Minister of Canada, in a letter to the provincial Premiers dated Aug. 15, 1964, proposed a temporary measure permitting a province to contract out of certain programs for an interim period pending the development of more permanent arrangements. Parliament approved the necessary legislation—the Established Programs (Interim Arrangements) Act—in April 1965. Under the Act the Government of Canada is authorized to enter into agreements with any province that wishes to contract out of certain conditional grant programs. The nature and number of programs are itemized in the schedules to the Act.

Schedule I lists the major conditional grant programs of a continuing nature which a province may contract out of, and Schedule II lists smaller and more transient programs. The Schedule I programs are: (1) hospital insurance; (2) old age assistance, blind persons' allowances, disabled persons' allowances, and the welfare portion of unemployment assistance; (3) the technical and vocational training programs for youths who are not yet members of the labour force; and (4) the health grant program, except those elements that involve research and demonstration. The Schedule II programs are: (1) agricultural lime assistance; (2) the forestry programs; (3) hospital construction grants; (4) campgrounds and picnic areas; and (5) the roads to resources program.

If a province wishes to contract out of a Schedule I program, it must enter into a supplemental agreement in which it undertakes to assume full responsibility for the administration and financing of the program. The Federal Government undertakes to ensure that the province receives revenue equivalent to the fiscal burden it assumes. The Federal Government undertakes to (a) abate by a specified percentage the federal individual income tax on the income of residents of the province; (b) pay an associated equalization; and (c) make an operating cost adjustment. The operating cost adjustment payment or recovery is to ensure that a province does not suffer or benefit financially through assuming the financing of the federal share of the former joint program. Because of their smaller size and lack of continuity, the compensation associated with contracting-out of a Schedule II program does not provide for federal tax abatement or associated equalization payments. The compensation for these programs will be paid directly to the province by the federal Minister of Finance.

The freedom of a province to vary the nature and condition of a program which it has contracted out of differs between the Schedule I and Schedule II programs. Under the Act, a supplemental agreement with respect to a Schedule I program can vary the conditions of the original agreement only as to the manner in which Canada will contribute to the program and the manner in which accounts are submitted. A supplemental agreement for a Schedule II program may require the program to be continued as in the original authority or it may allow a province to substitute a provincial program whose objectives are substantially similar.

The Established Programs (Interim Arrangements) Act is designed to provide for an interim period during which a province may assume greater administrative and financial responsibility for the enumerated programs and during which time more permanent arrangements governing joint programs may be devised. The length of the interim period is set out in the Act for each program and varies from Mar. 31, 1967 to Dec. 31, 1970. The tax abatement associated with Schedule I programs is also set out in the Act and varies from 1 p.c. for the health grants program to 14 p.c. for hospital insurance.

22.—Conditional Grants and Shared-Cost Programs as at Mid-1965

Department and Project	Year Estab- lished	Basis of Provincial Apportionment of Federal Funds	Provinces Participating ¹	Provincial Share ²	Maximum Limitation on Grant ³	Federal Contribution 1963-64 ⁴
Agriculture—				p.c.		\$'000
Premiums on purebred sires, etc.	1913	Extent of provincial programs.....	10	5	5	56
Freight assistance on livestock shipments to Royal Winter Fair.....	1946	Extent of provincial programs.....	9 (Ont.)	25	O	30
4-H Club Activities.....	1900	Extent of provincial programs.....	10	50	O	145
Potato Warehouse Construction.....	1947	Estimated cost.....	P.E.I., Man., Sask., B.C.	37½	O	104
			7 (Prairie)	40	O	1,596
	1943	Extent of provincial programs.....				142
Agricultural Lime Assistance.....		Estimated cost.....	Man.	50	F	1,672
Land Protection and Reclamation—	1949	Estimated cost.....	Alta.	5	F	1,071
Riding and Duck Mountains.....	1950	Estimated cost.....	Alta.	5		
St. Mary's Irrigation.....	1950	Estimated cost.....				
Bow River Irrigation.....						
Assiniboine River—						
Shelburne Dam and Portage Diversion.....	1962	Estimated cost.....	Man.	50	O	78
South Saskatchewan Dam (dams and reservoir).....	1958	Estimated cost.....	Sask.	25	P	11,949
Assistance in Fodder Transportation.....	ad hoc	Estimated cost.....	N.S., Man., Sask.	50	O	41
Crop loss compensation.....	ad hoc	Estimated cost.....	P.E.I., N.S.	50	FP	122
Crop Insurance.....	1961	Extent of provincial programs.....	P.E.I., Man., Sask.	0-50 of admin. costs	O	429
						22
Indemnity for Losses due to Disease—						
Rabies.....	1959	Incidence of disease.....	Que., Ont.	60	O	
Citizenship and Immigration—						
Hospitalization and welfare of indigent immigrants.....	1947	Estimated cost.....	9 (N.B.)	50	O	20
Instruction for immigrants.....	1964	Extent of provincial programs.....	9 (Que.)	50	O	210
Fur conservation.....	1939	Extent of provincial programs.....	Ont., Man., Sask., Alta.	40-50	F	171
Roads on and to Indian Reserves—						
Saskatchewan Region.....	ad hoc	Estimated cost.....	Sask.	50	O	56
Six Nations Reserve.....	ad hoc	Estimated cost.....	Ont.	50-80	O	199
Non-reserve Schools for Indians—						
Capital contribution.....	ad hoc	Estimated cost.....	various school districts	ratio white to Indian children	O	1,972
	1948	Estimated tuition costs.....	various school districts		O	4,090
Instructional contribution.....		Recurring costs.....	Prairie	5	F	75
Community Development.....	1961	Flat grant.....	N.B.	—	F	8
Handicraft Development.....	ad hoc	Specified in each agreement.....	N.S., Ont., Man., Sask., B.C.	0-50	varies	124
Welfare services to Indians.....	1960					

For footnotes, see end of table, p. 1000.

22.—Conditional Grants and Shared-Cost Programs as at Mid-1965—continued

Department and Project	Year Estab- lished	Basis of Provincial Apportionment of Federal Funds	Provinces Participating ¹	Provincial Share ²	Maximum Limitation on Grant ³	Federal Contribution 1963-64 ⁴
Emergency Measures				p.c.		\$'000
	1952	Population.....	10	25-50 ⁷	F	4,424
Fisheries—						
Construction subsidy—fishing vessels.....	1942	Extent of provincial programs.....	Atlantic, Que. Nfld.	— s	O	500
Community fishing stages.....	1959	Estimated cost.....	Atlantic	50	O	95
Industrial development.....	1959	Extent of provincial programs.....			O	62
Forestry—						
Forest inventory.....	1951	Flat grant to P.E.I.; other provinces ratio of their productive forest lands to the total.	(7 Nfld., P.E.I., Que.) 8 (N.B., Que.) 10	50 75 50	F	910
Reforestation.....	1951		10	50	F	665
Forest Fire Protection.....	1957		10	50	F	2,220
Forest Access Roads.....	1958		10	50	F	3,572
Forest Stand Improvement.....	1962		(7 Nfld., Alta., B.C.)	50	F	542
Forest Stand Improvement (Cape Breton).....	1961	Extent of Unemployment.....	N.S.	50	F	91
Spruce Budworm Eradication.....	1953	Incidence of Infestation.....	N.B.	33 $\frac{1}{3}$	F	138
Agricultural Rehabilitation and Development (Act)	1962	Flat grant—ratio of net value of agri- cultural production, number of sub- marginal farms and rural population to the national totals.....	10	33 $\frac{1}{3}$ -50. s	F	3,631
Maritime Marshland Rehabilitation (Act).....	1943	Estimated cost.....	Maritime		O	463
Labour—						
Agricultural Manpower.....	1941	Specified in Agreement.....	9 (Nfld.)	50	F	94
Rehabilitation of Disabled Persons.....	1953	Extent of provincial programs.....	9 (Que.)	50	O	517
Technical and Vocational Training—						
Vocational High School Training.....	1950	Flat grant and population (15-19 age group).....	10	50	F	2,756
Technician Training.....	1960	Extent of provincial programs.....	9 (P.E.I.)	50	O	7,063
Trade and Other Occupational Training.....	1960	Extent of provincial programs.....	10	50	O	10,220
Training in Co-operation with Industry.....	1946	Extent of provincial programs.....	7 (Nfld., P.E.I., Sask.)	25	O	88
Training of Unemployed.....	1948	Extent of provincial programs.....	10	10-50	O	10,455
Training of the Disabled.....	1950	Extent of provincial programs.....	9 (P.E.I.)	50	O	105
Training of Technical and Vocational Teachers.....	1960	Extent of provincial programs.....	9 (P.E.I.)	50	O	380
Training for Federal Departments and Agencies.....	1942	Estimated cost.....	varies	0-25	O	56
Student Aid.....	1927	Specified in Agreement.....	10	50	F	312
Technical and Vocational Correspondence Courses	1950	Extent of provincial programs.....	varies	50	O	1

Capital Contribution.....	1945	Extent of provincial programs.....	10	25 to Mar. 31, 1970 and 50 thereafter 50 6	101,045 2,335 26,626
Apprenticeship Training.....	1944	Extent of provincial programs.....	8 (P.E.I., Que.)		F O O
Municipal Winter Works.....	1958	Extent of approved municipal programs.	10		
National Health and Welfare—					
National Health Grants—					
Hospital Construction.....	1948	Estimated construction.....	10	50	22,275
Professional Training.....	1948	Flat grant and population.....	10	6	1,740
Mental Health.....	1948	Flat grant and population.....	10	6	8,304
Tuberculosis Control.....	1948	Flat grant, population and T.B. deaths.....	10	6	3,038
Public Health Research.....	1948	Based on research needs.....	10	6	1,571
Cancer Control.....	1948	Flat grant and population.....	10	50	3,156
General Public Health.....	1948	Flat grant and population.....	10	9	10,002
Child and Maternal Health.....	1953	Flat grant, provincial infant birth and death ratio.....	10	6	1,204
Medical Rehabilitation and Crippled Children.....	1953-48	Flat grant and population.....	10	50 ^{uo}	1,853
Hospital Insurance.....	1958	Population eligible for hospitalization X (25 p.c. of average national per capita costs + 25 p.c. of average provincial per capita costs).....	10	6	391,297
Old Age Assistance.....	1952	Needy population (age group 65-69).....	10	50	39,139
Blind Persons' Allowances.....	1937	Needy blind population (age group 18-69).....	10	25	4,859
Disabled Persons' Allowances.....	1954	Needy, disabled population (age group 18-69).....	10	50	20,194
Unemployment Assistance.....	1955	Needy unemployed.....	10	50	107,215
Fitness and Amateur Sport.....	1962	Flat grant and population.....	9 (Que.)	40	238
Disability Advisory Services.....	1954	Extent of provincial programs.....	9 (Ont.)	50	24
Blind Pensioners—treatment.....	1948	Extent of provincial programs.....	8 (Alta., B.C.)	25	18
National Welfare Grants—					
—welfare research.....	1962	Based on need.....	8 (P.E.I., Que.)	6	152
—general welfare and professional training.....	—			50 ⁷	
National Research Council—					
Technical Information Services.....	1952	Extent of provincial programs.....	7 (Nfld., P.E.I., Que.)	6	188
Northern Affairs and National Resources—					
Nature Conservation.....	1938	Estimated construction costs.....	Ont.	374-624	1,509
Nelson River Study.....	1963	Estimated survey cost.....	Man.	50	450
Lake of the Woods Control Board.....	1921	Estimated capital cost.....	Man., Ont.	664	—
Crozier River Board.....	1949	Extent of Board Program.....	B.C.	50	65
Greater Winnipeg Floodway.....	1962	Estimated cost.....	Man.	25-624	6,091
Roads to Resources.....	1958	Flat grant for province.....	10	50	8,132
Campgrounds—Picnic Areas—Trans-Canada Highway.....	1959	Provincial trans-Canada mileage.....	8 (Que., Ont.)	50	250

For footnotes, see end of table, p. 1000.

22.—Conditional Grants and Shared-Cost Programs as at Mid-1965—concluded

Department and Project	Year Estab- lished	Basis of Provincial Apportionment of Federal Funds	Provinces Participating ¹	Provincial Share ²	Maximum Limitation on Grant ³	Federal Contribution 1963-64 ⁴
				p.c.		\$ '000
Public Works—						
Trans-Canada Highway.....	1950	Provincial mileage and extent of pro- vincial programs.....	10	10-50	O	39,240
Okanagan Flood Control.....	1950	Estimated cost.....	B.C.	50	O	38
Ottawa-Hull Bridge.....	1961	Estimated cost.....	Ont., Que.	33½	O	1,812
Urban Redevelopment ⁵	1944	Project cost.....	10	507	O	3,841
Urban Renewal Studies ⁶	1956	Project cost.....	10	25-507	O	1,084
Land Assembly and Low-Rental Housing ⁷	1949	Project losses.....	10	257	O	1,379
Secretary of State—						
Centennial observance.....	1961	Flat grant and population.....	10	—	F	—
Trade and Commerce—						
Vital Statistics.....	1909	Estimated cost.....	10	6	O	83
Transport—						
Railway Grade Crossing Fund.....	1909	Approved construction.....	10	12½-157	F	8,576
Municipal Airports.....	1927	Related to airport operational deficit..	10	—	O	109
Operational subsidy.....	—	Approved capital projects.....	10	507	F	127
Capital.....	—					

¹ Provinces excepted are shown in parenthesis.² As here used, 50 p.c. may mean the province must contribute 50 p.c. of the cost of the project or must match the federal contribution.³ F = a maximum limit set to the federal share; P = a maximum limit to the provincial share; and O = federal and provincial shares are open-ended.⁴ Source: *Public Accounts of Canada, 1963-64*.⁵ Not uniform.⁶ Provinces to provide administration, services, facilities, land, loans or to undertake a specific portion of the project, etc.⁷ Represents the provincial and/or municipal share.⁸ Each government undertakes to carry out an aspect of the program and bear the costs associated with that aspect.⁹ Provinces to maintain existing level of expenditures.¹⁰ Share for provision of services only.¹¹ Disbursement made by Central Mortgage and Housing Corporation as Federal Government agent.

Section 5.—Provincial Public Finance

Provincial government accounting and reporting practices vary considerably so that certain adjustments to the *Public Accounts* figures are required in order to produce comparable statistics. For example, transactions relating to a specific function are sometimes excluded from ordinary account; therefore special or administrative funds of this nature have been added to provincial ordinary account in the tables of this Section. The fiscal years of all provinces end on Mar. 31.

Revenue and Expenditure.—Table 23 shows net revenue and expenditure of provincial governments for the years ended Mar. 31, 1959-63, and Tables 24 and 25 give details of such revenue and expenditure for the fiscal year ended Mar. 31, 1963. "Net general revenue" and "net general expenditure" are arrived at by first analysing the combined revenues and expenditures of capital account, current or ordinary account and those working capital funds and special funds for which separate accounts are kept. Then the following types of revenue are deducted from revenue and offset against related expenditure: interest, premium, discount and exchange; institutional revenue; and grants-in-aid and shared-cost contributions from other governments. Table 26 gives details of the amounts paid to other governments by provincial governments, according to nature of payment.

23.—Net Revenue and Expenditure of Provincial Governments, Years Ended Mar. 31, 1959-63

Province or Territory	1959	1960	1961	1962	1963
NET GENERAL REVENUE					
	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	62,381	60,266	64,461	68,859	76,131
Prince Edward Island.....	12,568	13,819	16,093	17,877	19,200
Nova Scotia.....	75,752	90,532	92,225	102,259	113,788
New Brunswick.....	71,007	77,343	86,628	84,255	90,121
Quebec.....	556,723	605,035	640,711	753,110	864,589
Ontario.....	647,067	778,450	833,128	927,113	1,095,310
Manitoba.....	76,573	99,814	104,145	118,020	130,615
Saskatchewan.....	141,409	145,658	148,920	156,651	201,283
Alberta.....	236,370	278,882	245,483	272,978	292,917
British Columbia.....	295,722	313,758	320,288	346,420	363,927
Yukon Territory.....	1,885	2,082	2,308	2,357	3,423
Northwest Territories.....	1,412	1,597	1,744	1,861	3,510
Canada.....	2,178,869	2,467,236	2,556,134	2,856,760	3,255,814
NET GENERAL EXPENDITURE¹					
	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	61,530	64,863	74,713	83,559	100,868
Prince Edward Island.....	14,388	20,049	15,386	19,351	22,545
Nova Scotia.....	86,336	91,804	111,689	107,559	113,180
New Brunswick.....	70,928	79,430	94,868	94,719	100,954
Quebec.....	533,026	600,942	749,296	847,612	951,953
Ontario.....	741,936	898,230	937,308	1,036,709	1,172,444
Manitoba.....	97,821	127,695	137,055	137,237	146,479
Saskatchewan.....	137,513	142,248	160,027	158,744	178,992
Alberta.....	215,030	234,657	266,314	279,128	282,263
British Columbia.....	266,584	283,163	331,476	338,567	356,867
Yukon Territory.....	2,148	2,297	2,610	2,925	4,934
Northwest Territories.....	1,934	1,354	2,033	2,167	3,951
Canada.....	2,229,174	2,546,932	2,872,775	3,108,277	3,435,430

¹ Excludes debt retirement.

24.—Net General Revenue of Provincial Governments, Year Ended Mar. 31, 1963

Source	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Taxes—													
Corporations.....	337	105	958	731	29,727	16,616	1,311	938	2,251	3,047	—	—	56,041
Income—													
Corporations.....	4,782	1,475	7,318	5,841	119,711	109,118	16,810	10,842	25,022	33,521	—	—	395,340
Individuals.....	3,056	506	6,611	4,742	98,318	152,021	20,380	14,292	24,000	35,995	—	—	359,921
Property.....	—	—	97	367	—	1,673	—	13	—	6,558	278	15	9,001
Sales—													
Alcoholic beverages.....	1	436	1	1	—	—	—	1	—	1	84	—	520
Amusements and admissions.....	79	62	360	278	8,954	11,497	761	105	921	2,361	21	—	25,399
Motor fuel and fuel oil.....	7,576	2,740	19,813	15,958	120,550	182,990	23,620	27,962	36,311	45,549	344	286	483,669
Tobacco.....	1	360	1	2,044	25,954	—	—	1	—	—	—	—	28,358
General.....	14,723	2,155	17,455	9,663	153,088	179,339	—	39,237	—	99,944	—	—	615,604
Other commodities and services.....	—	—	370	10,806	—	—	—	—	—	—	—	—	11,176
Succession duties.....	—	—	4	—	44,149	—	1	12	2	—	—	—	72,014
Hospital insurance premiums.....	—	1,079	1	—	91,925	91,925	13,038	13,883	—	—	—	—	119,425
Other.....	331	2	96	93	1,841	7,453	739	263	45	240	—	—	11,103
Totals, Taxes.....	30,904	8,920	53,082	39,721	596,791	856,751	76,660	107,047	89,452	227,215	727	301	2,087,571
Government of Canada—													
Statutory subsidies.....	1,656	657	2,132	1,745	3,863	4,624	2,089	2,115	2,816	1,673	—	—	23,470
Fed.-Prov. Fiscal Arrangements Act 1962.....	32,147	6,502	31,010	26,675	66,392	—	14,669	24,226	9,309	7,320	1,335	2,141	221,726
Fed.-Prov. Tax-Sharing Arrangements Act 1956, adjustme its.....	272	225	2,785	663	11,467	—177	4,043	4,154	4,909	—4,818	—	—	23,523
Share of income tax on power utilities.....	171	52	487	40	4,559	968	47	30	2,763	1,090	—	—	10,207
Totals, Government of Canada.....	34,246	7,436	36,414	29,123	86,381	5,415	20,848	30,525	19,797	5,265	1,335	2,141	278,926
Privileges, Licences and Permits—													
Liquor control and regulation.....	2,376	25	303	202	18,845	26,465	2,968	96	1,122	571	11	78	53,062
Motor vehicles.....	3,017	808	6,236	5,135	46,349	71,862	8,496	8,496	15,443	21,116	207	68	186,829
Natural resources.....	1,488	17	1,415	3,618	35,627	43,468	4,670	28,025	129,922	67,220	29	53	315,552
Other.....	1,611	134	693	632	12,827	9,411	2,126	1,574	2,624	3,107	102	21	33,862
Totals, Privileges, Licences and Permits.....	7,492	984	8,647	9,557	113,648	151,206	17,856	38,191	149,111	92,014	349	220	589,305
Sales and services	365	346	2,222	1,666	14,852	15,062	1,948	5,548	6,638	7,216	53	26	56,242
Fines and penalties.....	412	62	327	272	2,653	—	2,456	805	2,009	775	24	21	9,452
Liquor profits.....	2,604	1,415	12,787	9,642	43,269	63,177	12,391	14,406	24,535	30,911	921	758	216,816
Other revenue.....	30	12	292	73	5,445	569	27	4,494	1,306	358	9	2	12,617
Totals, excluding Non-revenue and Surplus Receipts.....	76,053	19,175	113,771	90,054	862,022	1,094,833	130,186	201,016	293,148	363,754	3,418	3,469	3,250,929
Non-revenue and surplus receipts.....	78	25	17	37	2,567	477	429	267	769	173	5	41	4,855
Totals, Net General Revenue.....	76,131	19,200	113,788	90,121	864,589	1,095,310	130,615	201,283	293,917	363,927	3,423	3,510	3,255,814

1 Taxed under the general sales tax.

25.—Net General Expenditure of Provincial Governments, Year Ended Mar. 31, 1963

Function	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
General Government.....	5,908	1,060	5,518	4,088	46,888	39,125	4,399	8,042	8,712	17,666	459	168	142,033
Protection of Persons and Property.....	3,689	503	3,389	3,010	45,224	55,960	6,561	7,377	15,671	13,977	350	636	158,290
Transportation and Communications													
Highways, roads and bridges.....	20,730	7,803	27,420	28,226	167,077	253,364	28,363	29,970	57,580	84,136	396	214	704,679
Waterways.....	—	9	512	573	1,419	20	161	363	392	1,672	—	—	5,002
Other.....	20	6	48	—	508	—	162	458	—	—	—	4	1,204
Totals, Transportation and Communications.....	20,750	7,818	27,980	28,899	169,002	253,384	28,566	30,091	57,972	85,808	397	218	710,885
Health and Social Welfare—													
Health—													
General health.....	163	76	123	216	1,925	3,738	584	415	1,107	1,217	78	25	9,767
Public health.....	725	184	1,924	1,702	11,805	6,477	2,123	3,978	2,541	4,321	210	346	35,344
Medical, dental and allied services.....	1,922	135	1,96	201	1,989	9,009	973	6,122	2,533	5,044	2	6	21,022
Hospital care.....	15,975	3,138	19,190	17,550	145,253	235,112	29,848	37,554	37,202	47,561	265	308	586,996
Social Welfare—													
Aid to aged persons.....	2,095	716	2,172	2,273	22,014	13,806	2,651	5,352	9,859	13,638	119	55	74,750
Aid to blind persons.....	105	16	153	148	658	523	124	215	138	291	1	8	2,380
Aid to unemployed employables and unemployables.....	7,770	282	4,116	1,851	37,796	17,769	6,676	5,198	8,463	9,943	63	102	99,809
Maternal allowances.....	—	142	1,343	1,343	20,743	12,870	2,021	1,346	1,407	—	—	—	36,505
Child welfare.....	523	178	902	455	28,140	6,467	2,021	1,346	2,923	3,469	42	58	46,534
Labour.....	1,103	77	403	359	3,792	2,022	353	277	402	475	1	—	8,205
Other social welfare.....	—	44	142	320	9,645	3,296	1,625	3,152	2,254	1,965	81	14	23,471
Totals, Health and Social Welfare.....	30,458	4,948	29,331	26,298	263,390	304,689	46,456	63,689	67,919	87,924	862	922	946,786
Recreational and Cultural Services.....	287	242	1,165	382	4,504	11,573	1,058	4,319	3,182	2,930	112	48	28,772
Education—													
Schools operated by local authorities.....	18,090	3,297	19,414	11,419	175,832	263,090	27,658	34,815	86,679	65,120	2,171	1,683	709,508
Universities, colleges and other schools.....	7,821	781	4,495	4,095	64,284	64,284	8,988	9,972	15,538	16,464	—	—	210,704
Education of the handicapped.....	226	20	358	158	6,000	6,000	118	307	706	558	—	—	9,008
Superannuation and pensions.....	—	2	2,027	266	69	19,006	524	1,095	1	3,668	—	—	26,601
Other.....	681	157	949	302	22,607	2,834	943	1,294	905	1,368	4	11	31,935
Totals, Education.....	26,781	4,257	27,127	16,200	276,749	355,814	38,531	47,483	103,829	87,136	2,175	1,694	987,776

25.—Net General Expenditure of Provincial Governments, Year Ended Mar. 1963—concluded

Function	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Natural Resources and Primary Industries—													
Fish and game.....	1,553	76	304	332	9,967	3,173	491	344	887	1,283	18	120	18,548
Forests.....	1,919	120	1,457	2,911	14,224	17,917	982	885	6,674	15,580	4	—	61,673
Lands: settlement and agriculture.....	671	693	1,456	1,496	34,824	10,000	4,829	7,371	6,589	4,475	—	—	72,404
Minerals and mines.....	147	2	1,017	1,173	2,436	1,628	1,550	1,432	4,570	2,208	12	—	14,175
Water resources.....	—	—	62	37	1,924	6,067	1,381	1,003	1,122	601	6	—	12,203
Other.....	88	63	124	407	3,751	2,233	3,581	2,081	509	348	—	—	13,185
Totals, Natural Resources and Primary Industries.....	3,378	954	4,420	5,356	67,126	41,018	11,814	13,116	20,351	24,495	40	120	192,188
Trade and industrial development.....	472	244	1,007	887	5,382	4,973	1,204	3,542	582	1,345	29	12	19,679
Local government planning and development.....	340	26	153	377	2,802	2,878	384	1,203	1,500	400	260	26	8,439
Debt charges excluding debt retirement.....	5,846	1,850	11,230	8,697	30,518	58,556	3,530	—1,217	—15,212	—1,138	73	—	102,733
Unconditional grants to local governments.....	1,765	470	1,329	6,155	250	34,302	3,613	12	16,629	12,859	149	93	77,626
Contributions to government enterprises.....	1,200	—	286	—	—	921	—	—	3,198	3,198	—	—	5,605
Other expenditure.....	24	161	196	88	15,853	3,351	262	1,110	851	18,303	—	14	40,213
Totals, excluding Non-expense and Surplus Payments.....	100,868	22,533	113,131	100,437	945,688	1,166,544	146,318	178,667	281,988	356,993	4,906	3,951	3,422,025
Non-expense and surplus payments.....	—	12	49	517	6,265	5,900	161	325	274	—126	28	—	13,405
Totals, Net General Expenditure (excluding debt retirement).....	100,868	22,545	113,180	100,954	951,953	1,172,444	146,479	178,992	282,263	356,867	4,934	3,951	3,435,430

26.—Specified Amounts Paid to Other Governments by Provincial Governments, Year Ended Mar. 31, 1963

Nature of Payment	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Paid to Local Governments—													
Shared-revenue contributions ¹	—	—	9	—	—	1,163	—	—	225	—	—	—	1,397
Subsidies.....	1,765	418	1,320	6,135	250	31,352	3,366	—	15,000	12,859	149	93	72,707
Grants in lieu of local taxes on provincial government property ²	—	52	—	20	—	1,787	247	12	1,404	—	—	—	3,522
(Grants-in-Aid and Shared-Cost Contributions—													
Corrections.....	—	—	—	32	—	—	—	—	—	—	—	—	32
Police protection.....	—	—	—	—	—	285	—	—	123	—	—	—	418
Fire protection.....	—	2	—	—	1,300	188	—	—	—	—	—	—	1,490
Other protection.....	—	—	6	—	25	12	—	—	—	—	—	—	43
Highways, roads and bridges.....	269	58	206	220	6,145	75,922	3,341	6,713	6,613	583	15	24	100,109
Public health.....	123	—	729	—	4,555	3,203	90	76	1,988	325	—	—	11,389
Medical, dental and allied services.....	—	—	—	—	—	42	102	85	—	—	—	—	229
Hospital care ³	—	—	—	—	—	—	—	—	—	—	—	—	3
Aid to aged persons (homes).....	—	—	—	—	—	7,217	—	3	—	4	—	—	7,221
Aid to unemployed employables and unemployables.....	—	—	—	—	—	—	—	—	—	—	—	—	—
Child welfare.....	—	—	1,400	2,507	—	26,133	2,322	6,083	2,599	22,007	—	122	63,233
Other health and social welfare.....	—	—	—	337	—	4,633	—	—	—	—	—	—	4,970
Parks, beaches and other recreational areas.....	10	31	—	—	—	251	56	—	962	—	—	—	307
Other recreational and cultural services.....	—	—	—	—	—	572	—	—	—	—	—	—	1,575
Schools operated by local authorities ⁴	5	3,104	18,273	10,546	173,253	373,650	28,107	34,397	84,629	63,742	6	214 ⁷	803
Lands—													
Settlement and agriculture.....	—	—	—	—	318	891	234	298	218	10	—	—	1,969
Other.....	—	—	423	—	50	74	—	732	—	—	—	—	1,279
Local government planning and development.....	6	—	—	—	—	1,264	—	196	—	—	—	—	1,466
Civil defence.....	—	—	204	107	339	1,268	811	—	201	518	—	—	2,637
Winter works projects.....	318	151	35	—	18,671	6,534	—	2,602	3,582	4,999	—	—	37,703
Other payments.....	—	—	—	—	4,587	71	—	—	2	—	—	—	4,060
Totals, Paid to Local Governments.....	2,491	3,816	22,605	19,904	209,798	537,123	38,676	51,199	117,546	105,107	164	453	1,108,882
Paid to Government of Canada—													
Police services—RCMP.....	814	148	823	617	—	—	994	1,184	1,719	2,122	—	—	8,421
Totals, Paid to All Governments.....	3,305	3,964	23,428	20,521	209,798	537,123	39,670	52,383	119,265	107,229	164	453	1,117,303

1 N.S.—Crown land leases; Ont.—share of liquor licences; Alta.—share of liquor fines.
² Excludes grants in lieu of taxes paid by provincial government enterprises.
³ Excludes amounts paid directly to municipal hospital boards.
⁴ Includes grants paid directly to teachers in P.E.I., N.B. and Que.
⁵ Primary and secondary schools are operated on a denominational basis; grants to denominational schools amounted to \$16,912,000.
⁶ Local schools are operated by the territorial government and by religious denominations.
⁷ Local schools are operated by the Federal Government, religious denominations and school districts; amount shown was paid to school districts.

Debt of Provincial Governments.—Table 27 shows total bonded debt, by province, as at Mar. 31, 1962-64. Table 28 shows that the majority of bond issues are payable in Canada. Table 29 provides details of total direct and indirect debt of provincial governments as at Mar. 31, 1964.

27.—Gross Bonded Debt (exclusive of Treasury Bills) of Provincial Governments, as at Mar. 31, 1962-64

Province and Year	Bonded Debt	Average Interest Rate	Average Term of Issue	Province and Year	Bonded Debt	Average Interest Rate	Average Term of Issue
	\$'000	p.c.	yrs.		\$'000	p.c.	yrs.
Newfoundland—				Ontario—concluded			
1962.....	86,500	4.97	19.5	1963.....	1,871,610	4.20	21.5
1963.....	139,378	5.38	19.2	1964.....	1,937,320	4.29	21.6
1964.....	154,364	5.41	20.0	Manitoba—			
Prince Edward Island—				1962.....	305,302	4.18	15.7
1962.....	29,960	4.59	14.5	1963.....	294,328	4.34	16.4
1963.....	31,110	4.75	15.5	1964.....	301,610	4.36	15.9
1964.....	31,604	5.02	16.7	Saskatchewan—			
Nova Scotia—				1962.....	487,734	4.51	18.3
1962.....	330,870	4.06	17.5	1963.....	530,815	4.63	18.7
1963.....	341,470	4.22	18.3	1964.....	559,120	4.69	19.0
1964.....	344,171	4.36	18.6	Alberta—			
New Brunswick—				1962.....	14,528	2.80	17.6
1962.....	250,138	4.15	18.4	1963.....	12,915	2.82	18.1
1963.....	262,590	4.26	18.8	1964.....	10,983	2.83	18.8
1964.....	262,980	4.38	19.4	British Columbia—			
Quebec—				1962.....	74,916	3.41	24.1
1962.....	635,975	4.27	18.4	1963.....	74,207	3.42	24.1
1963.....	781,975	4.52	18.5	1964.....	74,007	3.42	24.2
1964.....	974,957	4.74	17.2	Totals—			
Ontario—				1962.....	4,036,301	4.21	17.9
1962.....	1,820,378	4.14	18.3	1963.....	4,340,398	4.35	19.8
				1964.....	4,651,116	4.47	19.6

28.—Gross Bonded Debt¹ (exclusive of Treasury Bills) of Provincial Governments, by Place of Payment, as at Mar. 31, 1962-64

Payable in—	1962	1963	1964
	\$'000	\$'000	\$'000
Canada.....	3,060,981	3,316,134	3,672,442
Britain.....	2,312	—	—
Britain and Canada.....	2,974	2,974	—
United States.....	836,959	894,212	884,910
United States and Canada.....	67,710	66,076	52,148
Britain, United States and Canada.....	56,262	51,899	32,513
Switzerland.....	9,103	9,103	9,103
Totals.....	4,036,301	4,340,398	4,651,116

¹ Excludes bonds assumed by the provinces.

29.—Provincial Government Direct and Indirect Debt (less Sinking Funds), as at Mar. 31, 1964

Direct and Indirect Debt		Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada
		\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Direct Debt—														
Funded Debt—														
Bonded debt.....	154,364	31,604	344,171	202,980	974,957	1,937,320 ¹	301,610	559,120	10,983 ²	74,007	—	—	—	4,651,116
Less sinking funds.....	21,514	4,523	75,300	73,638	126,361	161,941	58,429	90,140	—	74,007	—	—	—	695,563
Net bonded debt.....	132,850	27,081	268,871	139,342	848,596	1,775,379	243,181	468,980	10,983	—	—	—	—	3,955,553
Net treasury bills (term of 2 or more years).....	—	—	—	12,125	—	—	23,322	23,153	6,743	—	—	—	—	65,343
Net Funded Debt.....	132,850	27,081	268,871	201,467	848,596	1,775,379	266,503	492,133	17,726	—	—	—	—	4,020,606
Short-term treasury bills (term of less than 2 years).....	—	6,500	—	10,000	—	—	38,515	13,000	—	—	—	—	—	68,015
Temporary loans and overdrafts.....	14,187	9,368	14,916	19,433	—	—	9,949	8,562	—	—	—	—	—	76,415
Trust funds, savings and other deposits.....	—	4,545	258	1,265	313	87,439	2,804	4	—	21	11,335	132	—	208,116
Accounts and other payables.....	21,874	2,505	18,579	12,232	183,083 ³	80,163 ⁴	3,280	5,509	15,095	19,114	6,786	3,241	—	371,521
Accrued interest and other accrued expenditure.....	150	—	3,677	6,244	20,379	47,472	18,363	7,080	112	—	—	—	—	103,477
Totals, Direct Debt (less Sinking Funds).....	169,061	50,059	306,301	250,641	1,052,371	2,090,453	339,414	526,288	32,954	30,449⁵	6,918	3,241	—	4,858,150
Indirect Debt—														
Guaranteed bonds or debentures.....	22,442	7,074	3,334 ⁶	70,202	1,600,113	1,720,166	312,419	16,934	360,169	1,403,459	—	—	—	5,516,312
Less sinking funds.....	—	—	636	868	61,738	32,846	9,461	—	6,758	1,101,661	—	—	—	213,968
Net guaranteed bonds or debentures.....	22,442	7,074	2,698	69,334	1,538,375	1,687,320	302,958	16,934	353,411	1,301,798	—	—	—	5,302,344
Guaranteed bank loans.....	19,962	3,354 ⁷	3,133	5,524	1,943	20,435	—	6,212	2,112	2,785	—	—	—	65,460
Municipal Improvement Assistance Act loans.....	—	—	166	69	667	—	—	84	44	86	—	—	—	1,116
Other guarantees.....	—	—	—	—	—	—	20,000	2,817	2,632	74,786	—	—	—	100,235
Totals, Indirect Debt (less Sinking Funds).....	42,404	10,428	5,997	74,927	1,540,965	1,707,755	322,958⁸	26,047	355,199⁹	1,379,455	—	—	—	5,469,155
Totals, Direct and Indirect Debt (less Sinking Funds).....	211,465	60,487	312,298	325,568	2,593,336	3,798,208	662,372	552,335	391,153	1,409,904	6,918	3,241	—	10,327,305
Direct debt (less sinking funds) per capita.....	\$ 344	\$ 468	\$ 402	\$ 406	\$ 189	\$ 317	\$ 354	\$ 558	\$ 23	\$ 18	\$ 432	\$ 130	\$ 253	\$
Indirect debt (less sinking funds) per capita.....	86	97	8	121	277	259	337	28	250	794	—	—	—	284

¹ Includes bonds issued by the Ontario Junior Farmer Establishment Loan Corporation \$20,000,000 and by the Ontario Municipal Improvement Corporation \$23,000,000.
² Includes bonds due \$2,000.
³ Includes debts assumed by the province as follows: Metropolitan Boulevard \$55,314,000, bonds issued by the Quebec Municipal Commission in the name of school corporations \$16,228,000 and University Financing Act \$12,360,000.
⁴ Includes net liability of the province re Ontario Savings Account authorized: Mar. 31, 1964.
⁵ Excludes debt of toll road authority.
⁶ Excludes bonds of the Halifax-Dartmouth Bridge Commission \$3,898,000.
⁷ Excludes bonds of the Halifax-Dartmouth Bridge Commission \$3,898,000.
⁸ In addition, the province has guaranteed the interest on school district debentures having a par value of \$4,812,000 and on sewage disposal and water supply debentures having a par value of \$2,831,000.
⁹ Excludes guaranteed interest under the School Borrowing Assistance Act and the School Building Assistance Act on principal borrowings of \$12,452,000; includes guarantee of debentures issued by the Alberta Municipal Financing Corporation to finance the purchase of municipal debentures (see footnote 2, Table 34).

Section 6.—Municipal Public Finance

Municipal Taxation.—Table 30 shows, for the year 1962, local taxes levied by municipalities and by some school authorities and total taxes outstanding at the end of the year. Because of the considerable differences in the division of responsibility for services between the provincial governments and their respective municipalities, these figures should not be used as a basis for interprovincial comparisons of the relative burden of municipal taxation.

30.—Municipal Taxation, by Province, 1962

Item	New- found- land	Prince Edward Island	Nova Scotia	New Brun- swick	Quebec	Ontario
Taxation revenue..... \$'000	5,070	3,058	43,134	33,671	395,229	690,806
Tax Collections, Current and Arrears—						
Total..... \$'000	4,802	2,830	40,837	32,523	387,151	686,306
Percentage of taxation revenue..... p.c.	94.71	92.55	94.67	96.59	97.96	99.35
Taxes receivable, current and arrears..... \$'000	1,970	965	15,048	11,659	71,347	75,895
Percentage of taxation revenue..... p.c.	38.86	31.55	34.89	34.63	18.05	10.99
	Manitoba	Saskat- chewan	Alberta	British Columbia	Yukon	N.W.T.
Taxation revenue..... \$'000	83,139	89,528	135,461	146,582	226	400
Tax Collections, Current and Arrears—						
Total..... \$'000	79,421	88,051	132,648	146,000	190	399
Percentage of taxation revenue..... p.c.	95.53	98.35	97.92	99.60	84.07	99.75
Taxes receivable, current and arrears..... \$'000	14,861	20,351	24,228	8,422	108	97
Percentage of taxation revenue..... p.c.	17.87	22.73	17.88	5.70	47.79	24.25

Municipal Revenue, Expenditure and Debt.—Tables 31, 32 and 33 show comparative totals and details of gross ordinary revenue and expenditure of municipal governments, by province, and Table 34 sets out the direct and indirect debt of local governments for the fiscal years ended nearest Dec. 31, 1962.

31.—Gross Ordinary Revenue and Expenditure of Municipal Governments, by Province, Fiscal Years Ended Nearest Dec. 31, 1962

Province	Gross Ordinary Revenue ¹	Gross Ordinary Expenditure ²	Province or Territory	Gross Ordinary Revenue ¹	Gross Ordinary Expenditure ²
	\$'000	\$'000		\$'000	\$'000
Newfoundland.....	7,886	7,751	Saskatchewan.....	120,378	119,797
Prince Edward Island.....	3,862	3,805	Alberta.....	195,697	195,784
Nova Scotia.....	56,183	56,352	British Columbia.....	219,096	216,406
New Brunswick.....	48,911	48,292	Yukon Territory.....	530	475
Quebec.....	463,210	471,785	Northwest Territories.....	687	688
Ontario.....	919,946	906,234			
Manitoba.....	105,484	104,248	Canada.....	2,141,860	2,131,617

¹ Includes surplus from previous years (see Table 32).
33).

² Includes deficit from previous years (see Table

32.—Details of Gross Ordinary Revenue of Municipal Governments, Fiscal Years Ended Nearest Dec. 31, 1962

Source	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Taxes, General and School—													
Real property.....	2,993	2,339	32,429	23,966	249,459	667,346	69,145	82,991	116,335	132,747	183	320	1,379,253
Personal property.....	4	256	6,939	5,561		1	6,027	1	7,459	3,675	...	...	12,700
Business.....	1,137	282	1,624	1,916	25,985	1	95	714	...	...	...	...	48,106
Poll.....	184	134	1,419	2,895		...	...	150	...	...	...	6	5,447
Amusement.....	70	...	...	...	1,676	...	...	863	...	...	...	...	1,896
Sales.....	635	...	...	...	51,695	...	483	...	...	...	...	...	53,676
Household and tenant.....	...	...	...	...	...	...	...	...	...	...	...	...	...
Other.....	24	2	215	146	8,305	—	58	196	—	16	...	...	8,900
Special assessments (owners' share) and charges.....	23	47	508	187	58,109	23,365	7,426	4,614	11,667	10,144	43	73	116,206
Totals, Taxes.....	5,070	3,058	43,134	33,671	395,229	690,806	83,139	89,528	135,461	146,582	226	400	1,626,304
Licences and permits.....	188	44	438	305	6,327	7,727	1,635	2,481	3,068	6,933	52	10	29,208
Interest, tax penalties, etc.....	2	9	570	403	7,805	8,384	1,679	1,608	2,344	3,067	6	5	25,882
Contributions, Grants and Subsidies—													
Governments.....	1,708	549	8,147	12,485	21,339	148,234	11,483	13,226	26,617	36,330	218	248	280,584
Government enterprises.....	116	99	1,150	539	6,884	9,444	2,376	7,253	14,312	5,828	18	7	47,696
Other.....	369	1	437	64	2,151	3,984	580	789	166	1,833	—	—	10,374
Miscellaneous revenue.....	330	68	1,204	695	19,922	35,765	2,735	4,653	12,916	14,046	10	17	92,361
Totals, Revenue.....	7,783	3,828	55,080	48,162	459,627	904,344	103,627	119,538	194,884	214,319	530	687	2,112,409
Surplus from previous years.....	103	34	1,103	749	3,583	15,602	1,857	840	813	4,767	—	—	29,451
Grand Totals.....	7,886	3,862	56,183	48,911	463,210	919,946	105,484	120,378	195,697	219,086	530	687	2,141,860

1 Included with real property.

2 Less than \$500.

3 Included with business.

33.—Details of Gross Ordinary Expenditure of Municipal Governments, Fiscal Years Ended Nearest Dec. 31, 1962

Function	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
General government.....	904	260	3,642	3,189	57,479	57,146	7,729	7,728	10,973	11,590	69	92	160,801
Protection of persons and property.....	489	414	6,900	5,007	66,286	112,277	12,449	8,752	21,052	29,039	96	36	262,797
Public works.....	1,939	407	2,877	2,680	67,060	125,243	14,946	23,461	28,030	16,986	103	98	283,830
Sanitation and waste removal.....	631	26	1,228	772	12,768	39,803	3,525	2,753	6,135	6,483	59	37	74,220
Health.....	13	1	3,192	876	7,523	16,251	2,004	4,872	10,366	2,864	1	6	47,968
Social welfare.....	4	81	2,926	4,217	4,346	53,451	5,021	6,928	4,988	23,812	—	22	105,796
Education.....	264	1,725	25,578	22,562	146,269	315,214	37,398	44,667	66,019	65,749	—	204	725,679
Recreation and community services.....	152	77	868	1,057	16,115	33,905	3,310	4,235	6,804	10,241	14	29	76,807
Debt Charges—													
Debt and other long term.....	771	511	5,059	4,533	62,751	82,219	7,999	6,163	22,812	29,801	39	44	222,702
Other.....	104	49	575	439	10,819	12,173	398	805	564	1,235	1	1	27,161
Utilities and other municipal enterprises (deficits and levies).....	267	28	64	373	—	12,158	1,845	2,261	3,373	2,037	—	34	22,440
Provision for reserves.....	87	130	1,364	659	—	10,365	2,179	1,791	2,829	4,682	34	7	24,127
Contributions to capital and loan fund.....	1,828	81	913	428	18,277	22,206	2,807	3,469	7,174	10,491	53	60	67,787
Joint or special expenditure.....	—	—	—	—	—	3,174	270	—	74	168	—	—	3,686
Miscellaneous expenditure.....	268	15	587	1,372	2,092	9,766	972	1,898	4,549	1,228	8	19	22,774
Totals, Expenditure.....	7,751	3,805	55,773	48,164	471,785	905,351	102,852	119,783	195,742	216,406	475	688	2,128,575
Deficit from previous years.....	—	—	579	128	—	883	1,396	14	42	—	—	—	3,042
Grand Totals.....	7,751	3,805	56,352	48,292	471,785	906,234	104,248	119,797	195,784	216,406	475	688	2,131,617

1. Less than \$500.

34.—Debt of Municipal and School Corporations, as at Fiscal Year Ends Nearest Dec. 31, 1962

Direct and Indirect Debt	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Direct Debt (less Sinking Funds)—													
Debtenture debt.....	19,668	11,492	105,521	85,517	1,675,755 ¹	1,832,172	190,594	175,237	476,135	503,133	924	186	5,076,334
Less sinking funds.....	115	1,655	3,896	7,368	12,605	83,407	18,182	11,341	3,364	48,215	—	—	190,148
Net debtenture debt.....	19,553	9,837	101,625	78,149	1,663,150	1,748,765	172,412	163,896	472,771	454,918	924	186	4,886,186
Temporary loans and bank overdrafts....	1,774	1,128	14,576	10,135	101,786	75,368	12,455	8,919	9,407	15,204	9	—	250,761
Accounts payable and other liabilities....	3,789	531	13,010	7,789	163,491	198,287	18,096	23,881	42,092	35,863	179	110	507,118
Totals, Direct Debt (less Sinking Funds).....	25,116	11,496	129,211	96,073	1,928,427	2,022,420	202,963	196,696	524,270²	505,985	1,112	296	5,644,065
Indirect Debt (less Sinking Funds)—													
Guaranteed bonds or debentures.....	—	—	1,352	5,033	—	3,342	2,590	—	—	—	—	—	12,317
Less sinking funds.....	—	—	333	—	—	—	—	—	—	—	—	—	333
Net guaranteed bonds or debentures.....	—	—	1,019	5,033	—	3,342	2,590	—	—	—	—	—	11,984
Guaranteed bank loans.....	3	—	—	—	—	—	—	—	8	—	—	—	11
Totals, Indirect Debt (less Sinking Funds).....	3	—	1,019	5,033	—	3,342	2,590	—	8	—	—	—	11,995
Grand Totals.....	25,119	11,496	130,230	101,106	1,928,427	2,025,762	205,553	196,696	524,278	505,985	1,112	296	5,656,060

¹ Includes \$51,932 debentures of the Montreal Transportation Commission guaranteed by the City of Montreal.

² Includes debentures sold to the Alberta Municipal Financing Corporation; see footnote ⁹, Table 29.

CHAPTER XXIV.—TRENDS IN ECONOMIC AGGREGATES*

CONSPECTUS

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SECTION 1. NATIONAL ACCOUNTS.....	1012	SECTION 5. THE ECONOMIC COUNCIL OF CANADA.....	1043
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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

In this Chapter various statistical statements and studies are presented in which broad areas of Canadian economic activity are covered in a comprehensive but summary form. These integrated aggregative economic accounts provide an interrelated framework for economic analysis and the observation of changes in the functioning of the Canadian economy and its structure and in economic and financial relationships with other countries.

Section 1.—National Accounts

The national accounts constitute a set of accounting summaries for the nation as a whole and portray economic activity in terms of transactions taking place between different sections of the economy. By combining and summarizing these operations into their various classes, information may be obtained on the functioning of the economy which is of particular interest to governments concerned with problems of full employment, taxation and prices, and to business men concerned with programs of investment and marketing.

This measurement of the nation's output is in terms of established market prices; hence it is necessary to keep in mind that the value of the nation's production may change because of price variations as well as through increase or decrease in volume of output.

Data are available showing volume changes in gross national expenditure in addition to the value figures. Gross national expenditure is shown in Table 4 in constant dollars (i.e., in terms of 1949 prices). Because the gross national expenditure equals the gross national product, these data also reflect volume changes in the production of goods and services as measured by the gross national product. In the other tables in which the data are expressed in current dollars, year-to-year changes must be considered in relation to price changes over the period.

The tables on pp. 1018-1022 cover the more important aspects of the national income analysis in annual terms. Definitions are as follows:—

National Income.—Net national income at factor cost measures the current earnings of Canadian factors of production (i.e., land, labour, capital) from productive activity. It includes wages and salaries, profits, interest, net rent and net income of farm and non-farm unincorporated business.

* Sections 1-4 were prepared in the National Accounts and Balance of Payments Division, Dominion Bureau of Statistics, and Sections 5 and 6 by the authorities concerned.

Gross National Product.—Gross national product, by totalling all costs arising in production, measures the market value of all final goods and services produced in the current period by Canadian factors of production. It is equal to national income plus net indirect taxes (indirect taxes less subsidies), plus capital consumption allowances and miscellaneous valuation adjustments.

Personal Income.—Personal income is the sum of current receipts of income whether or not these receipts represent earnings from production. It includes transfer payments from government (such as family allowances, unemployment insurance benefits and war service gratuities) in addition to wages and salaries, net income of unincorporated business, interest and dividends and net rental income of persons. It does not include undistributed profits of corporations and other elements of the national income not paid out to persons.

Gross National Expenditure.—Gross national expenditure measures the same aggregate as gross national product, namely, total production of final goods and services at market prices, by tracing the disposition of production through final sales to persons, to governments, to business on capital account (including changes in inventories) and to non-residents (exports). Imports of goods and services, including net payments of interest and dividends to non-residents, are deducted since the purpose is to measure only Canadian production.

Economic Activity in 1964

Gross national expenditure reached \$47,003,000,000 in 1964, compared with \$43,180,000,000 in 1963. This gain of 9 p.c. was the largest annual advance since 1956. Since prices were almost 2½ p.c. higher, the increase in terms of constant dollars was 6½ p.c. Western grain crops, although large, were considerably smaller than the exceptional harvest of 1963, with the result that the rate of increase in non-farm output exceeded that in output as a whole.

The pace of expansion was uneven throughout the year. An upsurge in the first quarter was associated with special circumstances—the Government's winter house-building incentive program, forward buying of certain capital goods in anticipation of the progressive imposition of the sales tax, and huge sales of wheat following the contract entered into with the Soviet Union in the latter part of 1963. With these special factors absent or not present in the same degree, the pace of expansion was more moderate during the remainder of the year.

The expansion in 1964 was broadly based, all components of final demand contributing to the gain. In addition, business stock accumulation was substantially higher than in 1963 but, with outlays for business capital goods up 18 p.c., the strongest forward impetus came from the investment sector; expenditures for plant and equipment made a major gain, reflecting larger programs in a wide range of industries, and housing reached new records. Consumer markets were buoyant; spending rose almost 7½ p.c., one of the largest gains in recent years. The demand for durables was unusually strong, although the rate of increase in car sales was not as high as in the two previous years.

The international climate favoured the expansion of trade despite a slowing down in the rate of growth in some overseas countries during the course of the year. In addition to a major increase in the already high level of wheat shipments, there were substantial gains in exports of many export products and exports of goods and services were up 15 p.c. The high and rising level of economic activity in Canada, particularly in the investment sector, contributed to a 13-p.c. rise in imports of goods and services. The further narrowing of the deficit on current international transactions due to the increased surplus on merchandise trade was one of the notable developments of the year.

Government purchases of goods and services were appreciably higher than in 1963, paced by an increase of over 9 p.c. at the provincial-municipal level. Federal purchases of goods and services, which amount to a little over half those of other levels of government, were 3½ p.c. higher. Other government expenditures which, although not directly a part

of the gross national product, contribute indirectly to final demand by supporting expenditure by other sectors, rose by 8 p.c. Government revenues advanced more sharply than expenditures and the government sector as a whole came into virtual balance, the federal deficit shifting to a surplus for the first time since 1957 and the provincial-municipal deficit remaining unchanged.

The salient developments on the income side were a nearly 9-p.c. rise in labour income, the largest since 1956, and an increase in corporation profits of nearly 15 p.c. Farm income reflected the drop in crop production from the exceptionally high level of the previous year.

The changes in expenditure and income described above were associated with an expansion in employment of 3.6 p.c. in 1964 and a drop in the average rate of unemployment from 5.5 p.c. to 4.7 p.c. of the labour force; the growth in non-agricultural employment was 4.3 p.c. By the end of the year, the rate of unemployment had fallen to 4.0 p.c. from 4.9 p.c. a year earlier.

With over-all prices increasing by nearly $2\frac{1}{2}$ p.c., approximately three fourths of the 9-p.c. increase in the gross national product from 1963 to 1964 represented a gain in real terms. Prices increased slightly more in 1964 than in 1963; prices of consumer goods and services advanced by $1\frac{1}{2}$ p.c. in both years and prices of investment goods, affected by the progressive implementation of the federal sales tax on production machinery and building materials, increased by about $3\frac{1}{2}$ p.c. compared with just over $2\frac{1}{2}$ p.c. in 1963. The price component of exports of goods and services advanced by a little over 2 p.c. in 1964 and prices of imported goods and services by less than 2 p.c. Within the consumer goods and services sector, prices of durable goods declined 1 p.c. as a result of a decrease of about $2\frac{1}{2}$ p.c. in the prices of new cars; non-durable goods prices advanced by almost 2 p.c., with clothing and food prices increasing by 3 p.c. and $1\frac{1}{2}$ p.c., respectively; prices of the service component rose about 2 p.c., with rather widespread advances in all the main components other than rents, which advanced only slightly.

Components of Demand.—Personal expenditure in 1964 was almost $7\frac{1}{2}$ p.c. higher than in 1963, showing one of the largest gains in recent years. Since prices were higher by $1\frac{1}{2}$ p.c. on consumer purchases, the real growth was 6 p.c.

All components shared in the strong demand for durables, particularly furniture, appliances and radios and home furnishings which reflected, in part, the activity in housing. The $11\frac{1}{2}$ p.c. increase in the net purchases of new and used cars was below the 14 p.c. recorded during the previous two years, possibly because of the interruption in supplies caused by work stoppages. Purchases of new cars contributed more than half of the growth in durables and it is noteworthy that purchases of cars of overseas manufacture increased sharply, reversing the trend evident for the previous few years. Purchases of non-durable goods increased more than 6 p.c. over 1963; increases in food and clothing provided the main impetus and moderate increases were registered in sales of alcoholic beverages and tobacco. Purchases of fuel and gas declined fractionally.

The growth of almost 8 p.c. in expenditure on services accounted for roughly 40 p.c. of the increase in total consumer spending. Increases of about 8 p.c. were registered in personal services and personal care and of 7 p.c. in recreation. Shelter expenses were up almost 6 p.c. compared with an 8-p.c. increase in the previous year. Part of the growing demand for services was attributable to higher outlays in 1964 by Canadians travelling abroad.

Spending on business fixed capital in 1964 totalled \$8,968,000,000, up 18 p.c. from 1963; based on 1957 prices, the compound rate of growth was some 13 p.c., the highest since 1956. The upsurge, spread throughout the year, resulted in an annual rate $4\frac{1}{2}$ p.c. above the yearly average. Residential capital formation, at \$2,021,000,000, was more than 18 p.c. higher than in 1963. The 165,700 building starts surpassed the previous record of 164,600 made in 1958; completions numbered about 151,000 units, 18 p.c. more than in 1963; and dwellings under construction at the end of the year numbered 107,700

compared with 96,600 at the end of 1963. About nine tenths of the expansion in housing starts was in multiple dwellings, mostly in urban areas. Changes in housing activity may be attributed to the availability of mortgage money, to winter house-building incentive programs, to demographic factors and perhaps to the increased attractiveness of apartment accommodation. Non-residential building and engineering capital formation also advanced by about 18 p.c. to \$3,343,000,000. About half of the gains were in utility projects, notably in the electric power, urban transit and railway industries, and large expansions occurred in manufacturing by the paper, transportation equipment and primary metal industries; in mining by petroleum and oil wells and by iron mines; and in the financial industries by real estate companies. The industrial composition of 1964 private construction differed from that of 1963 in that there was a significantly smaller relative share for trade and commercial services.

Producers' durable equipment spending moved 18 p.c. higher than in 1963 to reach \$3,604,000,000. About two thirds of the gain was in manufacturing, particularly in the paper, primary metal, textile and transportation equipment industries, and other major gains were in agriculture and the railway industry. The industrial composition of 1964 machinery and equipment outlays differed from 1963 in that there was a significantly larger relative share for manufacturing and reduced shares for utilities and agriculture.

Non-farm stock accumulation amounted to \$510,000,000 in 1964 compared with \$200,000,000 in 1963. Although this was by far the largest annual increase during the economic expansion, the inventory held by business did not appear high in relation to output. Four fifths of the increase occurred in manufacturing and retail inventories; wholesale stocks increased also, but at a much lower rate. Most of the accumulation of inventories in manufacturing took place in durables, particularly in transportation equipment, metal fabricating and electrical goods industries. Among non-durables, much of the important change was in the newsprint industry, which shifted from depletion in 1963 to accumulation in 1964. For manufacturing as a whole, the stock-to-ships ratio at the end of the year was the same as that of a year earlier. All the increase in wholesale stocks was accounted for by the durable lines; the movements in non-durable trades were mixed and offsetting. The stock-to-sales ratio for all wholesale industry at the end of 1964 was lower than a year earlier. In retail trades, compared with 1963, durables were built up at a much reduced rate and non-durables at a much higher rate. The development in durables was largely the result of a curtailment in supply to new car dealers in the latter part of the year when strikes occurred in the automobile manufacturing industry. At the end of the year, the stock-to-sales ratio for all retail trade was higher than a year earlier.

The deficit in Canada's external account (on a national accounts basis) fell from \$524,000,000 to \$428,000,000 in 1964, the smallest deficit recorded since 1954. The change of \$96,000,000 resulted from an increase in the surplus in merchandise trade of \$197,000,000, partly offset by a rise of \$101,000,000 in the deficit on non-merchandise trade; about three quarters of the latter may be attributed to a turnabout from a surplus to a deficit in the travel account. Higher deficits in the interest and dividends account (at record levels for both receipts and payments) and the miscellaneous account (government expenditure, business and other services), and a drop in gold production available for export offset an improvement in the freight and shipping account. Massive shipments of wheat to the Soviet Union and other communist countries were a special factor in the 16-p.c. rise in merchandise exports; other gains were made in zinc, nickel, copper, iron ore and concentrates, newsprint, wood pulp, aircraft (after allowance for progress payments and deliveries), cars and trucks, motor vehicle parts, fish, barley, petroleum, farm and non-farm machinery, lumber and natural gas. Merchandise imports rose about 14½ p.c.; the increases were widespread among commodities but were particularly notable for non-farm machinery, automobile parts, electrical apparatus, tractors, engines and cars and trucks, farm equipment and steel plate, sheet and strip.

Total revenues of all governments combined (excluding inter-governmental transfers) increased by over $12\frac{1}{2}$ p.c. over 1963 to \$14,595,000,000. Total expenditures increased less sharply, by $7\frac{1}{2}$ p.c., resulting in a significant narrowing of the combined deficit (on a national accounts basis) from \$632,000,000 in 1963 to \$20,000,000 in 1964. The improvement in the deficit position came at the federal level where an increase in revenues more than double that of expenditures changed a deficit of \$292,000,000 in 1963 to a surplus of \$328,000,000 in 1964, the first annual surplus recorded since 1957. At the provincial-municipal level, the deficit changed little as revenues and expenditures increased by similar amounts.

The expansion of activity in the economy in 1964 was reflected in the advances of all components of total government revenues. Indirect tax revenue rose by 13 p.c. with the federal and the provincial-municipal governments sharing almost equally in the absolute increase. Most of the gain at the federal level was in excise taxes, resulting in part from increases in the sales tax rate on production machinery and building materials; provincial revenues from gasoline and sales taxes rose by almost 20 p.c., an increase associated with a higher volume of sales and some upward revision in tax rates; increased property taxes accounted for most of the rise at the municipal level but it was tempered somewhat by reduced returns from retail sales taxes attributable to the withdrawal in April 1964 of Quebec municipalities from the sales tax field in favour of the province.

Total corporate and personal direct taxes amounted to \$5,396,000,000, an increase of 14 p.c. over 1963. Reflecting improvement in employment and rising incomes, total revenue from federal and provincial personal income taxes was up 17 p.c. Accentuating the rise in federal personal income tax revenues was an increase from 3 p.c. to 4 p.c. (to a maximum of \$120 per taxpayer) in the levy on personal income on behalf of the Old Age Security Fund. There was an increase from 17 p.c. to 18 p.c., effective Jan. 1, 1964, in the abatement of the income tax in favour of the provinces under the terms of the federal-provincial fiscal arrangements.

Investment income accruing to government rose by almost $10\frac{1}{2}$ p.c., the largest increase occurring in trading profits of government enterprises. At the federal level, investment income increased by 9 p.c. Larger trading profits of power commissions and utilities accounted for more than half of the increase at the provincial-municipal level.

Total expenditures of all levels of government (excluding transfers between different levels of government) advanced by $7\frac{1}{2}$ p.c. or by \$1,022,000,000 from 1963 to 1964, more than two thirds of the gain occurring at the provincial-municipal level. Provincial-municipal expenditures on goods and services rose by over 9 p.c. and federal outlays on goods and services by only $3\frac{1}{2}$ p.c.; the latter was accounted for by an increase of \$127,000,000 in non-defence outlays and a decline of \$24,000,000 in defence goods and services.

Income Flows.—Labour income for 1964, estimated at \$23,416,000,000 and up nearly 9 p.c. over 1963, recorded the largest year-to-year gain since 1956. Wages and salaries in the goods-producing and in the service-producing industries rose at approximately the same rate—9 p.c. In the former group, although construction showed the largest increase of about $11\frac{1}{2}$ p.c., substantial gains of almost 9 p.c. were made in manufacturing industries. In the service-producing industries, finance and service recorded a gain of over 11 p.c. and trade advanced close to 9 p.c. Wages and salaries in government non-military employment and in the transportation, communication and other utilities industries rose by 6 p.c. These gains in labour income were associated with a rise in the number of employed paid workers of nearly $4\frac{1}{2}$ p.c.

Corporation profits (before taxes and before dividends paid to non-residents) reached a record level in 1964 of \$4,580,000,000, an amount $14\frac{1}{2}$ p.c. above 1963. Most industries showed substantial increases—transportation was up almost 40 p.c.; mining, quarrying and oil wells rose over 30 p.c.; primary metal industries, metal fabricators, and machinery each increased about 20 p.c.; and wholesale trade, finance and service each rose about 15 p.c. Profits in the transportation equipment industry fell sharply in the latter part of the year when strikes interrupted the production of automobiles; on an annual basis profits were down 10 p.c. Profits in the textile industry and in public utilities also declined.

Rent, interest and miscellaneous investment income rose by 6 p.c. to reach \$3,277,000,000 in 1964, mainly because of the rise in trading profits of government business enterprises and increased receipts from withholding taxes. Net income of non-farm unincorporated business increased to \$2,587,000,000, about 5 p.c. above 1963. The largest gain, over 13 p.c., was in the construction industry which contributed more than one third of the total increase. Marked advances were also registered in service and finance industries.

Accrued net income of farm operators from farm production in 1964 was \$1,472,000,000, close to 15 p.c. lower than the record attained in 1963 but nearly 18 p.c. higher than the 1954-63 average; the value of the grain crop, estimated at \$1,133,000,000 was \$248,000,000 less than in 1963. Farm cash income, the largest component of farm net income, reached an all-time high of \$3,456,000,000, $8\frac{1}{2}$ p.c. above 1963. Major items contributing to the increase were wheat, flax, dairy products and potatoes but offsetting the increase was a decline in farm grain inventories. Gross income declined 3 p.c.

Farm operating expenses also reached a record high in 1964, although the increase of 4 p.c. over 1963 was somewhat lower than the previous ten-year average. Contributing to the increase in farm operating expenses were higher payments for fertilizers, interest on debts, operation of farm machinery including repair, livestock feed and farm labour.

Economic Activity in the First Half of 1965

Economic activity continued to expand in 1965. In the first half of the year, gross national product was at a seasonally adjusted annual rate of \$50,494,000,000, about $7\frac{1}{2}$ p.c. higher than in 1964; with prices higher, the gain in real terms was about $5\frac{1}{2}$ p.c. Part of the advance reflected the forecast of an exceptionally large crop in the Prairie Provinces, which added significantly to the nation's production despite some deterioration in quality caused by poor weather in the harvest season.

Turning to the components of demand, the sharpest advance in the first half of 1965 relative to the year 1964 was in gross fixed capital formation which was up more than 13 p.c. At the same time, government expenditure on goods and services was higher by more than 7 p.c. and consumer spending by 5 p.c. The expansionary stimulus of the increase in final domestic demand was reinforced by a substantially higher rate of stock-building. A moderate gain in exports of goods and services was accompanied by a much larger advance in imports, with the result that the deficit on current international account rose to \$1,000,000,000 at seasonally adjusted annual rates, more than double that of the previous year.

As reflected in income, expansion in the first half of 1965 brought an 8-p.c. gain in labour income and a $7\frac{1}{2}$ -p.c. advance in corporate profits, at seasonally adjusted annual rates. Income at the disposal of consumers for spending rose appreciably more than national income, mainly because of the extraordinarily large payments made to farmers by the Canadian Wheat Board early in the year.

In the situation of growing demand outlined above, total employment and non-farm employment rose 3.1 p.c. and 3.8 p.c., respectively, and the rate of unemployment fell from 4.7 p.c. to 4.2 p.c. of the labour force when seasonal factors are taken into account.

1.—Gross National Product, in Current and Constant (1949) Dollars, 1937-64

NOTE.—Comparable figures for 1927-36 are given in the 1965 Year Book, p. 1009.

Year	Millions of Current Dollars	Millions of Constant (1949) Dollars	Year	Millions of Current Dollars	Millions of Constant (1949) Dollars
1937.....	5,257	8,820	1952.....	23,995	20,027
1938.....	5,278	8,871	1953.....	25,020	20,794
1939.....	5,636	9,536	1954.....	24,871	20,186
1940.....	6,743	10,911	1955.....	27,132	21,920
1941.....	8,328	12,486	1956.....	30,585	23,811
1942.....	10,327	14,816			
1943.....	11,088	15,357	1957.....	31,909	24,117
1944.....	11,850	15,927	1958.....	32,894	24,397
1945.....	11,835	15,552	1959.....	34,915	25,242
1946.....	11,850	15,251	1960.....	36,287	25,849
			1961 ^r	37,471	26,515
1947.....	13,165	15,446			
1948.....	15,120	15,735			
1949.....	16,343	16,343	1962 ^r	40,561	28,275
1950.....	18,006	17,471	1963 ^r	43,180	29,583
1951.....	21,170	18,547	1964.....	47,003	31,499

2.—National Income and Gross National Product, by Component, 1960-64

NOTE.—Comparable figures for the years 1939, 1944, 1946, 1950 and 1953 are given in the 1957-58 Year Book, p. 1122, and for later years in succeeding editions.

(Millions of dollars)

Item	1960	1961 ^r	1962 ^r	1963 ^r	1964
Wages, salaries and supplementary labour income.....	18,245	18,996	20,233	21,546	23,416
Military pay and allowances.....	509	550	586	598	583
Corporation profits before taxes ¹	2,880	2,841	3,166	3,383	3,895
Rent, interest and miscellaneous investment income.....	2,470	2,670	2,871	3,093	3,277
Accrued net income of farm operators from farm production ²	1,186	1,008	1,498	1,725	1,472
Net income of non-farm unincorporated business ³	2,213	2,274	2,376	2,472	2,587
Inventory valuation adjustment.....	-70	-89	-113	-195	-121
Net National Income at Factor Cost.....	27,433	28,250	30,617	32,622	35,109
Indirect taxes less subsidies.....	4,470	4,696	5,273	5,568	6,331
Capital consumption allowances and miscellaneous valuation adjustments.....	4,423	4,540	4,914	5,172	5,607
Residual error of estimate.....	-39	-15	-243	-182	-44
Gross National Product at Market Prices.....	36,287	37,471	40,561	43,180	47,003

¹ Excludes dividends paid to non-residents.
net income of independent professional practitioners.² Includes changes in farm inventories.³ Includes

3.—Gross National Expenditure, 1960-64

NOTE.—Comparable figures for the years 1939, 1944, 1946, 1950 and 1953 are given in the 1957-58 Year Book, p. 1124, and for later years in succeeding editions.

(Millions of dollars)

Item	1960	1961*	1962*	1963*	1964
Personal expenditure on consumer goods and services.....	23,540	24,466	25,913	27,416	29,431
Government expenditure on goods and services.....	6,769	7,236	7,710	8,024	8,607
Current expenditure.....	6,199	6,699	6,955	6,822	6,748
Gross fixed capital formation.....	1,670	1,537	1,755	1,802	1,859
Business gross fixed capital formation.....	6,692	6,635	6,960	7,591	8,968
New residential construction.....	1,443	1,458	1,577	1,707	2,021
New non-residential construction.....	2,677	2,683	2,633	2,335	3,343
New machinery and equipment.....	2,672	2,494	2,745	3,049	3,604
Value of physical change in inventories.....	410	30	557	491	380
Non-farm business inventories.....	325	439	335	300	510
Farm inventories and grain in commercial channels.....	85	-409	222	291	-130
Export of goods and services.....	7,008	7,631	8,259	9,077	10,440
Deduct: Imports of goods and services.....	-8,172	-8,542	-9,082	-9,601	-10,868
Residual error of estimate.....	40	15	244	182	45
Gross National Expenditure at Market Prices.....	36,287	37,471	40,561	43,180	47,003

4.—Gross National Expenditure in Constant (1949) Dollars, 1960-64

NOTE.—Comparable figures for the years 1939, 1944, 1946, 1950 and 1953 are given in the 1957-58 Year Book, p. 1124, and for later years in succeeding editions.

(Millions of dollars)

Item	1960	1961*	1962*	1963*	1964
Personal expenditure on consumer goods and services.....	17,945	18,508	19,351	20,175	21,336
Government expenditure on goods and services.....	4,197	4,393	4,549	4,551	4,755
Current expenditure.....	3,067	3,227	3,265	3,285	3,455
Gross fixed capital formation.....	1,141	1,175	1,299	1,280	1,310
Adjusting entry.....	-11	-9	-15	-14	-10
Business gross fixed capital formation.....	4,345	4,272	4,369	4,646	5,297
New residential construction.....	837	841	939	1,035	1,159
New non-residential construction.....	1,637	1,698	1,633	1,710	1,962
New machinery and equipment.....	1,770	1,627	1,744	1,896	2,172
Adjusting entry.....	1	6	3	6	4
Value of physical change in inventories.....	361	26	477	420	321
Non-farm business inventories.....	262	350	250	153	392
Farm inventories and grain in commercial channels.....	86	-484	223	265	-163
Adjusting entry.....	13	160	-31	-58	87
Exports of goods and services.....	5,806	6,224	6,534	7,097	7,982
Deduct: Imports of goods and services.....	-6,743	-6,845	-6,992	-7,176	-7,991
Residual error of estimate.....	28	11	169	124	30
Adjusting entry.....	-90	-74	-182	-254	-231
Gross National Expenditure in Constant (1949) Dollars.....	25,849	26,515	28,275	29,583	31,499
Index of gross national expenditure (1949=100).....	158.2	162.2	173.0	181.0	192.7

5.—Personal Income, by Source, 1960-64

NOTE.—Comparable figures for the years 1939, 1944, 1946, 1950 and 1953 are given in the 1957-58 Year Book, p. 1125, and for later years in succeeding editions.

(Millions of dollars)

Item	1960	1961 ^r	1962 ^r	1963 ^r	1964
Wages, salaries and supplementary labour income.....	18,245	18,096	20,233	21,546	23,416
Deduct: Employer and employee contributions to social insurance and government pension funds.....	-751	-787	-812	-847	-892
Military pay and allowances.....	509	550	586	598	583
Net income received by farm operators from farm production	1,177	978	1,402	1,587	1,362
Net income of non-farm unincorporated business.....	2,213	2,274	2,376	2,472	2,587
Interest, dividends and net rental income of persons.....	2,882	3,030	3,308	3,555	3,760
Transfer Payments (excluding interest)—					
From governments.....	3,120	3,441	3,729	3,838	4,159
Charitable contributions from corporations.....	40	40	44	44	44
Totals, Personal Income.....	27,435	28,522	30,956	32,793	35,019

6.—Disposition of Personal Income, 1960-64

NOTE.—Comparable figures for the years 1939, 1944, 1946, 1950 and 1953 are given in the 1957-58 Year Book, p. 1125, and for later years in succeeding editions.

(Millions of dollars)

Item	1960	1961 ^r	1962 ^r	1963 ^r	1964
Personal Direct Taxes—					
Income taxes.....	1,979	2,125	2,316	2,487	2,930
Succession duties and estate taxes.....	158	146	165	171	185
Miscellaneous taxes.....	223	240	249	253	292
Personal expenditure on consumer goods and services.....	23,540	24,466	25,913	27,416	29,431
Personal net saving.....	1,535	1,545	2,313	2,466	2,181
Totals, Personal Income.....	27,435	28,522	30,956	32,793	35,019

7.—Personal Expenditure on Consumer Goods and Services, 1960-64

NOTE.—Comparable figures for the years 1939, 1944, 1946, 1950 and 1953 are given in the 1957-58 Year Book, p. 1126, and for later years in succeeding editions.

(Millions of dollars)

Item	1960	1961 ^r	1962 ^r	1963 ^r	1964
Food.....	5,713	5,829	6,113	6,371	6,693
Tobacco and alcoholic beverages.....	1,606	1,683	1,782	1,839	1,904
Clothing and personal furnishings.....	2,355	2,432	2,536	2,644	2,807
Shelter.....	3,621	3,812	3,997	4,316	4,564
Household operation.....	2,919	3,032	3,196	3,328	3,548
Transportation.....	2,807	2,872	3,163	3,399	3,656
Personal and medical care and death expenses.....	1,925	2,045	2,199	2,374	2,563
Miscellaneous.....	2,594	2,761	2,927	3,145	3,696
Totals.....	23,540	24,466	25,913	27,416	29,431
Durable goods.....	2,664	2,716	2,952	3,223	3,558
Non-durable goods.....	11,813	12,178	12,961	13,508	14,355
Services.....	9,063	9,572	10,000	10,685	11,518

8.—Federal, Provincial and Municipal Government Revenue and Expenditure, 1960-64

NOTE.—Comparable figures for the years 1939, 1944, 1946, 1950 and 1953 are given in the 1957-58 Year Book, p. 1126, and for later years in succeeding editions.

(Millions of dollars)

Item	1960	1961 ^r	1962 ^r	1963 ^r	1964
Revenue					
Direct Taxes: Persons—					
Income taxes.....	1,979	2,125	2,316	2,487	2,930
Succession duties and estate taxes.....	158	146	165	171	185
Miscellaneous taxes.....	223	240	249	253	292
Direct taxes: corporations.....	1,544	1,612	1,702	1,821	1,989
Withholding taxes.....	79	116	125	127	140
Indirect taxes.....	4,705	4,947	5,565	5,879	6,648
Investment Income—					
Interest.....	463	483	536	585	612
Profits of government business enterprises.....	600	643	721	791	907
Employer and employee contributions to social insurance and government pension funds.....	751	787	812	847	892
Totals, Revenue.....	10,502	11,099	12,191	12,961	14,595
Expenditure					
Purchases of goods and services.....	6,769	7,236	7,710	8,024	8,607
Transfer Payments—					
Interest.....	1,095	1,170	1,302	1,420	1,532
Other.....	3,120	3,441	3,729	3,838	4,169
Subsidies.....	235	251	292	311	317
Surplus or deficit (on transactions relating to the national accounts).....	-717	-999	-842	-632	-20
Totals, Expenditure.....	10,502	11,099	12,191	12,961	14,595

9.—Analysis of Corporation Profits, 1960-64

NOTE.—Comparable figures for the years 1939, 1944, 1946, 1950 and 1953 are given in the 1957-58 Year Book, p. 1127, and for later years in succeeding editions.

(Millions of dollars)

Item	1960	1961 ^r	1962 ^r	1963 ^r	1964
Corporation profits before taxes.....	2,880	2,841	3,166	3,383	3,895
Dividends paid to non-residents.....	458	586	584	613	685
Corporation profits including dividends paid to non-residents	3,338	3,427	3,750	3,996	4,580
<i>Deduct:</i> Corporation income tax liabilities.....	-1,544	-1,612	-1,702	-1,821	-1,989
Excess of tax liabilities over collections.....	-122	61	49	46	-102
Tax collections.....	1,666	1,551	1,553	1,775	2,091
Corporation profits after taxes.....	1,794	1,815	2,048	2,175	2,591
<i>Deduct:</i> Dividends paid to non-residents.....	-458	-586	-584	-613	-685
Corporation profits retained in Canada.....	1,336	1,229	1,464	1,562	1,906
<i>Deduct:</i> Dividends paid to Canadian persons.....	-459	-432	-517	-545	-610
<i>Deduct:</i> Charitable contributions from corporations.....	-40	-40	-44	-44	-44
Undistributed Corporation Profits.....	837	757	903	973	1,252

10.—Corporation Profits before Taxes (Including Dividends Paid to Non-residents), by Industry, 1960-64

NOTE.—Comparable figures for the years 1954 and 1955 are given in the 1957-58 Year Book, p. 1127, and for later years in succeeding editions.

(Millions of dollars)

Industry	1960	1961 ^r	1962 ^r	1963 ^r	1964
Agriculture.....	5	15	12	13	14
Forestry.....					
Fishing and trapping.....					
Mining, quarrying and oil wells.....	348	361	402	419	557
Manufacturing.....	1,516	1,555	1,791	1,964	2,133
Construction.....	78	94	74	76	83
Transportation.....	132	126	114	142	197
Storage.....	14	12	12	15	16
Communication.....	129	137	156	162	188
Electric power, gas and water utilities.....	85	87	91	75	74
Wholesale trade.....	228	222	248	275	325
Retail trade.....	212	213	224	245	260
Finance, insurance and real estate.....	510	530	542	526	633
Service.....	81	75	84	84	100
Totals.....	3,338	3,427	3,750	3,996	4,580

Section 2.—Industry Production Trends

Indexes of Real Domestic Product

The Dominion Bureau of Statistics in 1963 made available a new set of production data pertaining to the entire spectrum of Canadian industries. These data, in the form of volume of production indexes, are measures of value added for each industry expressed in the dollars of a base year. Technically, they are termed "indexes of real domestic product (GDP) at factor cost originating by industry".* The value added, or GDP, volume indexes can be regarded as an extension of the index of industrial production† to encompass the remainder of the economy. Concepts and basic methods used to construct both indexes are the same. Thus, industry production index coverage is extended from mining, manufacturing and electric power and gas utilities, for which volume indexes have been published since the 1920's, to include all other major industrial divisions—agriculture, forestry, fishing and trapping, construction, retail and wholesale trade, finance, insurance and real estate, transportation, storage and communication, public administration and defence, and community, recreation, business and personal service. However, only the index of industrial production is published on a monthly basis; for the remaining industries only quarterly and annual indexes are currently being published. The GDP indexes can also be regarded as an extension of the national accounting framework, i.e., as an elaboration of the supply side of the national income accounts.*

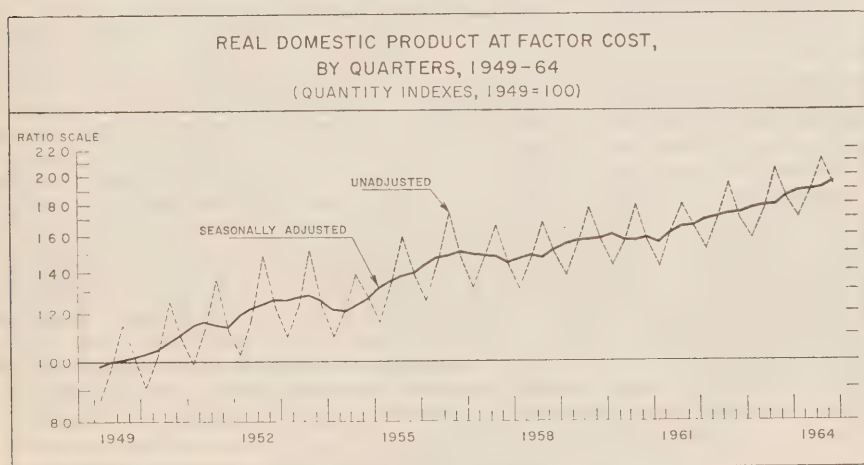
In measuring the output of a single product such as steel, it is normal to think in terms of tons of steel when the question of quantity arises. When measuring the combined production of steel and natural gas, there is an obvious need for a common denominator and it is appropriate to use the average unit prices of a certain time period (chosen as the base) to value the quantities produced before adding them together. The resultant quantity, volume or real output measure can be subsequently left in its constant or base period dollar form or it can be expressed in index number form. The latter is accomplished

* *Indexes of Real Domestic Product by Industry of Origin, 1935-61* (Catalogue No. 61-505). This paper provides a detailed explanation of concepts, uses and limitations, data sources, methodology, etc., and covers a much wider range of industries than provided in this Section. Current quarterly data are published in DBS monthly *Index of Industrial Production* (Catalogue No. 61-005).

† See *Revised Index of Industrial Production, 1935-57* (Catalogue No. 61-502) and the current monthly publication *Index of Industrial Production* (Catalogue No. 61-005).

by dividing the constant dollar aggregate of the current period by the dollar aggregate for the base period and multiplying by 100. In constructing a quantity index for a combination of industries where the output of one industry becomes the input of another, the portion double-counted must be eliminated. This is accomplished by revaluing both intermediate input (materials, fuel, etc.) and total output in terms of the dollars of a common base year and subtracting the constant dollar value of the former from the latter to yield a constant dollar value added aggregate.* This aggregate is the quantity or volume measure represented by the indexes presented herein.

The annual indexes are well suited for studies of production trends, growth rates and inter-industry comparisons, but the quarterly indexes provide a much better tool for the study of the cyclical behaviour of industries, short-term changes in production and, in fact, for most types of current analysis. Statistics computed for less than annual intervals, however, are frequently subject to strong seasonal influences, and variations in the number of working days during a quarter may cause differences in the levels of output between two quarters which otherwise would not exist. Accordingly, the quarterly real output indexes have been adjusted for both seasonal and calendar variation. The effects of the seasonal adjustment are shown on the quarterly chart for the period 1949-64.



Factors Underlying Industrial Output Trends, 1946-64.—The early postwar period was marked by several major expansions. The first was based on satisfying the backlog of war-deferred investment and consumer demand and on supplying the needs of the war-devastated countries, especially for various materials. This was followed by some slowing down in production but the requirements of defence-supporting industries after the outbreak of the Korean hostilities and stock-piling requirements at home and abroad introduced a second expansionary period. The third was the investment boom of the mid-1950's during which output reached a new high level. These strong demand influences combined to make most of this period one of fairly rapid and sustained growth. During the late 1950's the rate of increase diminished, as external sources of supply for many commodities multiplied and as competition intensified. At the same time, there was an absence of strong stimulants to domestic demand, such as the deferred demand and the population growth of the preceding period. During the 1960's, however, the first waves of the postwar generation exercised a growing influence on the demand for goods and services and this proved to be one of the major stimuli to the current expansion which began early in 1961 and continued into 1965. Other notable features of the expansion were the

* See footnote *, p. 1022.

relatively slow growth of imports compared with previous expansion periods, particularly after the stabilization of the Canadian dollar and other government measures undertaken in mid-1962 (although some acceleration took place in imports of machinery and equipment during 1964 and 1965 in response to the increased investment in construction and plant and equipment); the increase in exports, particularly during the latter part of 1963 and early 1964 when large amounts of wheat were sold abroad; the above-average output of the mining and agriculture industries during 1962 and 1963; the substantial gains in the production of the iron and steel and motor vehicle and parts industries throughout most of the period; and the increased investment activity in both non-residential and residential construction and in machinery and equipment during 1964 and 1965.

Along with the increases in total final demand, there were shifts in the composition of demand, which affected the output of the various industries. Imports retained roughly the same relative share of the gross national product but the share of exports declined from 27.1 p.c. in 1946 to 22.2 p.c. in 1964, an indication of the growing importance of the domestic market as an outlet for the products of Canadian industry. Government expenditure and business gross fixed capital formation made considerable relative gains but personal expenditure on goods and services as a percentage of total expenditure declined from 67.8 p.c. in 1946 to 62.6 p.c. in 1964.

Even more remarkable than some of the demand-induced changes were the striking changes brought about by the technological discoveries and innovations that transformed whole production processes and opened up previously unknown areas in the fields of manufacturing, transportation and communication. Newer industries, such as air transport, assumed major importance in a comparatively short time; entirely new industries, such as gas pipelines, appeared; and a profusion of new products were created, such as the petrochemicals of the chemicals industry and the television and other electronic products of the telecommunication equipment industry. As was to be expected, the industries in a position to benefit from such innovations were among the most rapidly expanding in the economy, although the impact of the expansion spread through the entire economic system. The changes in production and demand also influenced the level of employment in the various industries; there was a considerable shift in employment during the postwar period from the goods-producing to the service-producing industries and most of the loss in the former took place in agriculture. From 1946 to 1964, agriculture decreased its share of total employment by 16 p.c. but total employment continued to expand. In the same period the service-producing industries increased their share from 39 p.c. to 54 p.c. of the total.

11.—Quantity Indexes of Real Domestic Product at Factor Cost, by Industry of Origin, 1946-64

(1949=100)

Industry	1946	1947	1948	1950	1951	1952	1953	1954	1955
Agriculture.....	109.4	102.8	106.1	106.2	120.9	148.8	136.3	104.3	132.1
Forestry.....	103.1	118.7	118.8	118.9	141.5	129.7	123.7	128.4	135.7
Fishing and trapping.....	87.1	81.0	87.6	108.9	111.5	101.6	103.6	112.3	105.6
Mining.....	74.3	78.5	90.0	109.5	123.4	131.0	142.1	158.7	185.2
Manufacturing ²	85.2	93.2	97.3	106.2	115.0	118.5	126.4	122.9	134.7
Construction.....	68.4	79.7	89.2	106.7	110.6	123.2	130.1	129.8	139.8
Electric power and gas utilities.....	79.4	89.8	94.8	113.2	129.4	140.7	147.9	161.4	183.2
Transportation, storage, communication.....	90.5	98.2	99.8	103.3	113.1	119.4	120.9	117.9	133.6
Trade.....	89.4	97.3	96.0	106.9	108.1	114.6	121.3	120.6	132.0
Finance, insurance and real estate.....	81.6	87.7	93.4	105.6	113.4	118.4	123.2	129.9	136.5
Public administration and defence.....	124.7	92.6	92.3	106.6	119.0	136.3	144.2	151.3	156.3
Community, recreation, business and personal service.....	89.3	92.9	95.9	103.3	107.9	112.1	115.7	117.3	119.9
Real Domestic Product.....	89.8	93.8	97.1	106.4	114.6	122.7	126.7	123.9	136.3

For footnotes, see end of table.

**11.—Quantity Indexes of Real Domestic Product at Factor Cost,
by Industry of Origin, 1946-64—concluded**

Industry	1956	1957	1958	1959	1960	1961	1962	1963	1964
Agriculture.....	141.7	117.5	125.1	125.2	128.0	116.0	134.7	147.6	140.3
Forestry.....	143.4	130.5	115.6	130.6	141.8	130.8	140.5	149.4	159.3
Fishing and trapping.....	111.6	105.5	117.8	105.9	104.1	115.7	130.4	125.2	123.6
Mining ¹	212.3	227.8	227.0	251.1	253.3	266.9	287.4	294.4	326.5
Manufacturing ²	145.1	142.9	140.7	149.8	149.3	153.0	164.9	173.9	188.2
Construction.....	165.7	174.7	178.4	170.7	163.0	168.4	171.0	173.6	190.4
Electric power and gas utilities....	204.9	220.3	239.1	268.7	298.0	317.7	337.7	367.4	405.6
Transportation, storage and communication.....	149.2	149.5	146.6	160.6	163.9	172.1	179.2	192.0	209.3
Trade.....	144.2	144.6	147.4	156.4	156.6	158.2	166.8	173.2	183.8
Finance, insurance and real estate..	141.5	150.9	156.1	163.5	169.5	175.5	182.9	194.5	203.0
Public administration and defence..	158.9	163.7	171.3	175.0	177.8	183.9	187.9	188.1	189.8
Community, recreation, business and personal service.....	127.0	130.6	135.2	141.4	147.4	152.2	158.2	165.0	171.0
Real Domestic Product.....	147.7	147.0	148.9	156.5	158.5	161.4	171.4	180.2	190.8

¹ Contract drilling (excluding drilling for oil and gas) is not included here but is included in the total "Real Domestic Product". ² Repair service establishments classified to manufacturing are not included here but are included in the total "Real Domestic Product".

Industrial Expansion, 1946-64.—Although all the major industry groups expanded during 1946-64, development was not uniform throughout the period. Three important types of factors affecting the expansionary paths of industries were in evidence at some point during the period. The first may be described as some special factor at work in a particular industry, the effects of which would be most noticeable in that industry—for example, the demand for uranium which had an important influence on the mining industry during the latter half of the 1950's; the opening up of new mineral resources such as the iron ore mines in Quebec-Labrador; and certain technological innovations such as the development of synthetic materials or television. The second type of factor is much more general in its effects and in its causes. Such factors as increased demand for consumer goods resulting from a rising standard of living and a growing population, shifts in world trading patterns or shortages causing increased demand for export goods; the surge of investment activity associated with replacement cycles; attempts to broaden the base of economic activity through investment in research, social overhead capital, education, improved management and marketing techniques, or a more efficient production process (or a confluence of all these factors) appear to lie at the root of such postwar expansions as the investment boom of the mid-1950's or the rapid expansion in production immediately following the Second World War. The third type of factor would be some unique and far-reaching event, of which the Korean War might serve as a conspicuous example.

All three factors, jointly or in turn, have reacted on the various industries resulting in the upswings in aggregate production. The percentage growth of each of the main industrial groups in the 1946-64 period was as follows:—

<u>Industry</u>	<u>P.C.</u>	<u>Industry</u>	<u>P.C.</u>
Agriculture.....	1.5	Trade.....	4.0
Forestry.....	1.6	Finance, insurance and real estate.....	5.0
Fishing and trapping.....	1.8	Public administration and defence.....	4.2
Mining.....	8.8	Community, recreation, business and personal service..	3.6
Manufacturing.....	3.9		
Construction.....	5.2	REAL DOMESTIC PRODUCT.....	4.1
Electric power and gas utilities..	9.6		
Transportation, storage and communication.....	4.5		

Foremost in growth was the electric power and gas utilities industry, followed by the mining and construction industries. All three were strongly affected by technological advances, new discoveries and a fairly well sustained demand for their products. The demand in mining frequently came from abroad, resulting in relatively high export sales and providing incentive for the opening up and developing of new mineral resource areas. Some slackening in construction activity was evident following the unusually high levels reached during the mid-1950's but since 1963 the swing has again been upward.

Although most of the other industry divisions (except agriculture, forestry and fishing and trapping) expanded at roughly the same average rate of between about 4 p.c. and 5 p.c., the manufacturing, trade, and transportation, storage and communication industry divisions, which together account for about one half of the total output, also showed strikingly similar cyclical patterns. Both manufacturing and transportation had been given strong impetus during the Second World War and also the Korean War. Within manufacturing it was the durables component that expanded considerably during these periods of hostilities and that benefited from the need for machinery and equipment in the periods of heavy investment and from increased consumer demand. Non-durables maintained a fairly steady rate of expansion for most of the postwar period, largely in response to increased population and demand for industrial materials. Trade was less strongly affected by defence requirements and retail trade, in particular, exhibited a relatively smooth expansionary trend.

The community, recreation, business and personal service industry division was relatively insensitive both to cyclical and irregular influences but, along with some other steadily expanding industries such as finance, insurance and real estate, non-durables and retail trade, it helped to sustain aggregate production and growth during periods of contraction and expansion. Although this division as a whole showed a less-than-average rate of growth, some of its components, such as business services, education and hospitals and restaurants, hotels and motels, were among the most rapidly and steadily expanding in the economy.

The rates of growth in the forestry, agriculture, and fishing and trapping divisions were also below average and were subject to pronounced irregular fluctuations in output—forestry because of the nature of its production processes and also, to some extent, because of its sensitivity to changes in world demand and price; agriculture because of marked year-to-year differences in output more often caused by weather conditions and similar factors than by changes in prices and demand conditions; and fisheries because of its dependence on the vagaries of nature.

Production of Commodity-Producing Industries

The data contained in the tables under this heading are published in the DBS report *Survey of Production*.^{*} The scope of the survey of production is limited to industries chiefly engaged in the production of commodities and it measures production in current dollars. This is in contrast to the real domestic product series (pp. 1022-1025) which encompasses all industries and measures production in terms of the dollars of a base year.

Tables 12 and 13 give "census value added" production data, classified by province and industry, respectively. Census value added is derived by deducting the cost of materials, fuel, electricity and process supplies consumed in the production process from the gross value of output (shipments or sales adjusted for inventories). The figures include interim classification and valuation changes in mining and manufacturing brought about by the adoption of the 1960 standard industrial classification of establishments. However, the two industry aggregates continue to consist of census value added accruing from their primary activity only.^{*} Standard industrial classification changes have not yet been implemented for other industries.

^{*}DBS Catalogue No. 61-202. See Appendix II of the 1962 issue for census value added in manufacturing (all activities) 1961 and 1962.

12.—Census Value Added for Commodity-Producing Industries, by Province, 1960-62

Province or Territory	1960		1961		1962	
	\$'000	p.c.	\$'000	p.c.	\$'000	p.c.
Newfoundland ¹	241,446	1.3	261,003	1.4	290,161	1.4
Prince Edward Island.....	49,581	0.2	45,357	0.2	50,693	0.2
Nova Scotia.....	426,842	2.2	408,798	2.1	422,889	2.0
New Brunswick.....	344,913	1.8	329,480	1.7	330,241	1.5
Quebec.....	4,943,077	25.9	5,043,234	26.1	5,430,378	25.3
Ontario.....	7,871,140	41.2	8,073,123	41.8	8,694,867	40.6
Manitoba.....	739,561	3.9	693,411	3.6	898,736	4.2
Saskatchewan.....	1,050,042	5.5	765,917	4.0	1,259,180	5.9
Alberta.....	1,548,519	8.1	1,738,585	9.0	1,904,157	8.9
British Columbia ²	1,855,662	9.7	1,907,739	9.9	2,125,266	9.9
Yukon and Northwest Territories ² ..	36,513	0.2	30,479	0.2	29,464	0.1
Canada.....	19,107,294	100.0	19,297,126	100.0	21,436,033	100.0

¹ Excludes agriculture.

² Construction figures for the Yukon and Northwest Territories are included with British Columbia.

13.—Census Value Added for Commodity-Producing Industries, by Province and Industry, 1962

Industry	Newfoundland		Prince Edward Island		Nova Scotia		New Brunswick	
	\$'000	p.c.	\$'000	p.c.	\$'000	p.c.	\$'000	p.c.
Agriculture.....	--	--	13,364	26.3	25,715	6.1	25,027	7.6
Forestry.....	16,139	5.6	408	0.8	12,099	2.9	25,188	7.6
Fisheries.....	17,454	6.0	4,649	9.2	32,062	7.6	9,223	2.8
Trapping.....	70	--	1	--	117	--	167	0.1
Mining.....	59,829	20.6	246	0.5	44,354	10.5	9,062	2.7
Electric power.....	12,701	4.4	2,582	5.1	27,195	6.4	23,402	7.1
Manufactures.....	72,829	25.1	9,868	19.5	174,613	41.3	160,455	48.6
Construction.....	111,140	38.3	19,575	38.6	106,734	25.2	77,717	23.5
Totals.....	290,161 ¹	100.0 ¹	50,693	100.0	422,859	100.0	330,241	100.0
	Quebec		Ontario		Manitoba		Saskatchewan	
	\$'000	p.c.	\$'000	p.c.	\$'000	p.c.	\$'000	p.c.
Agriculture.....	298,014	5.5	596,983	6.9	253,061	28.2	682,332	54.2
Forestry.....	158,198	2.9	110,660	1.3	7,078	0.8	3,782	0.3
Fisheries.....	5,710	0.1	5,341	0.1	4,229	0.5	1,478	0.1
Trapping.....	1,596	--	2,452	--	1,445	0.2	1,316	0.1
Mining.....	309,017	5.7	382,598	4.4	34,631	3.8	189,025	15.0
Electric power.....	250,250	4.6	318,250	3.6	41,579	4.6	39,123	3.1
Manufactures.....	3,465,633	63.8	6,006,765	69.1	369,608	41.1	125,388	10.0
Construction.....	941,961	17.4	1,271,817	14.6	187,105	20.8	216,737	17.2
Totals.....	5,430,378	100.0	8,694,867	100.0	898,736	100.0	1,259,180	100.0
	Alberta		British Columbia		Yukon and Northwest Territories		Canada	
	\$'000	p.c.	\$'000	p.c.	\$'000	p.c.	\$'000	p.c.
Agriculture.....	442,613	23.2	105,976	5.0	—	—	2,443,085	11.4
Forestry.....	19,984	1.1	347,713	16.4	570	1.9	701,820	3.3
Fisheries.....	714	--	45,928	2.2	859	2.9	127,645	0.6
Trapping.....	1,551	0.1	630	--	1,014	3.4	10,360	--
Mining.....	561,933	29.5	134,839	6.3	22,201	75.4	1,747,734	8.2
Electric power.....	56,627	3.0	100,698	4.7	3,614	12.3	876,021	4.1
Manufactures.....	373,998	19.6	980,705	46.2	1,206	4.1	11,741,066	54.7
Construction.....	446,737	23.5	408,778 ²	19.2 ²	3	3	3,788,301	17.7
Totals.....	1,904,157	100.0	2,125,266	100.0	29,464	100.0	21,436,033	100.0

¹ Excludes agriculture.

² Includes the Yukon and Northwest Territories.

³ Included with British Columbia.

Section 3.—Aggregate Productivity Trends

During recent years, the increasing interest in questions of economic growth, cost-structure and international competitiveness, and in the relationships between output, employment, earnings and prices has focused attention on productivity as a framework within which such problems can usefully be discussed. In recognition of this interest, the Dominion Bureau of Statistics has made available annual indexes of output per person employed and per man-hour in Canada which now cover the commercial industries as a whole, with separate detail for agriculture and the commercial non-agricultural industries as well as manufacturing and the residual commercial non-manufacturing industries of this universe.*

While these measures relate output to a single input only, namely labour time, it must be emphasized that they do not measure the exclusive contribution of labour to output. Changes in indexes of output per unit of labour input reflect the combined influence of a number of separate though interrelated factors such as the amount and quality of capital equipment, the extent of utilization of available capacity, managerial efficiency and the impact of technological progress, as well as the skill and effort of the work force.

Sources of Data.—The output components of the various indexes of output per unit of labour input referred to here originate from the historical indexes of industrial production described in Section 2, p. 1022. These indexes, which were developed within the conceptual framework of the national accounts and which measure in constant dollar terms the unduplicated contribution of each component industry to total output, are considered basically suitable for productivity measurement when matched with the corresponding input measures.

The major sources for the employment and man-hour indexes were the monthly labour force and employment surveys, and these were supplemented by data from such sources as the annual censuses of manufacturing and mining, and the decennial censuses of population and of merchandising and services. Since the data from these diverse sources varied considerably in their coverage, concepts and methods of compilation, care had to be exercised in their selection, adaptation and combination into aggregate measures of labour input which would be conceptually and statistically consistent, both internally and in relation to the output data. Labour force survey data were used for the paid worker estimates of agriculture and of fishing and trapping, while those for manufacturing and mining were based on adjusted annual census data. Estimates for most of the remaining industry divisions were derived from adjusted employment survey data. Estimates of other than paid workers (own-account workers, employers and unpaid family workers) were mainly derived from the labour force survey. The estimates of average hours worked, which were needed for the indexes of output per man-hour, were also based on labour force survey data, except in the case of manufacturing, where estimates of man-hours paid from the census of manufactures were adjusted to the man-hours worked concept.

Growth Rates.—Output per person employed in the commercial non-agricultural industries, to which the initial coverage of the indexes was confined, grew at an average annual rate of 2.3 p.c. between 1946 and 1964. Because of the decline in average hours worked per person, this is a lower rate of growth than that of output per man-hour which, during the same period, increased by 2.9 p.c. per annum. Corresponding figures for manufacturing were 2.7 p.c. and 3.1 p.c. and, for the residual non-manufacturing industries of the commercial non-agricultural sector, 2.0 p.c. and 2.9 p.c., respectively.

In agriculture, the average annual rates of growth of output per person employed and per man-hour between 1946 and 1964 were 5.2 p.c. and 5.4 p.c., respectively. However, in view of the difficulties of measuring the number and especially the man-hours of persons employed in agriculture, data presented for this industry division should be regarded as

* See DBS Reference Paper *Indexes of Output per Person Employed and per Man-Hour in Canada, Commercial Non-agricultural Industries, 1947-63* (Catalogue No. 14-501) and its first annual revision *Indexes of Output per Person Employed and per Man-Hour in Canada, Commercial Industries, 1946-64* (Catalogue No. 14-201).

approximate. In the commercial industries as a whole, output per person employed increased between 1946 and 1964 at an average annual rate of 3.1 p.c., while output per man-hour grew by 3.9 p.c. per annum.

Inter-industry Shift Effects.—In addition to measuring the changes in productivity within the component industries, the aggregate productivity indexes measure shifts in employment and production between industries having different levels of productivity. One of the most significant such shifts within the commercial industries of Canada during the postwar years was from agriculture to the non-agricultural industries, where a higher level of output per unit of labour input prevails. The effect of this shift can be measured in various ways and a number of alternative calculations have been carried out for the most recent annual publication,* all of which confirm, to a greater or lesser extent, that the decline in the relative importance of agriculture made a positive contribution to the total increase in output per person employed in the commercial industries between 1946 and 1964.

*DBS Catalogue No. 14-201.

14.—Indexes of Output per Person Employed and per Man-Hour, 1946-64

(1949=100)

Year	Output	Persons Employed	Man-Hours	Output per Person Employed	Output per Man-Hour
COMMERCIAL INDUSTRIES					
1946.....	88.1	92.4	95.3	95.3	92.4
1947.....	94.0	96.8	97.4	97.1	96.5
1948.....	97.4	98.6	99.2	98.8	98.2
1949.....	100.0	100.0	100.0	100.0	100.0
1950.....	106.5	100.0	97.7	106.5	109.0
1951.....	114.6	102.5	99.5	111.8	115.3
1952.....	122.4	103.5	99.7	118.3	122.8
1953.....	126.2	104.0	100.0	121.3	126.3
1954.....	122.5	103.3	98.9	118.6	123.9
1955.....	135.7	104.7	99.5	129.6	136.4
1956.....	147.8	108.9	103.5	135.7	142.8
1957.....	146.5	110.8	103.6	132.2	141.4
1958.....	148.0	107.7	99.6	137.4	148.6
1959.....	155.7	109.5	100.9	142.2	154.2
1960.....	157.3	109.0	99.7	144.3	157.9
1961.....	159.7	109.4	98.5	146.0	162.2
1962.....	170.1	111.8	100.8	152.1	168.7
1963.....	179.4	114.1	101.8	157.2	176.2
1964.....	190.4	118.0	104.9	161.4	181.5
1964 as percentage of 1946.....	p.c. 216.2	127.6	110.0	169.4	196.5
Annual trend rate of change ¹	p.c. +4.1	+1.0	+0.3	+3.1	+3.9
AGRICULTURE					
1946.....	109.4	109.4	112.1	100.0	97.6
1947.....	102.8	103.5	102.4	99.3	100.4
1948.....	106.1	101.1	100.8	104.9	105.3
1949.....	100.0	100.0	100.0	100.0	100.0
1950.....	106.2	93.9	91.8	113.1	115.7
1951.....	120.9	86.6	86.2	139.6	140.3
1952.....	148.8	82.2	82.6	181.0	180.2
1953.....	136.3	79.2	81.1	172.2	168.0
1954.....	104.3	81.0	83.9	128.8	124.4
1955.....	132.1	75.6	78.4	174.9	168.5
1956.....	141.7	71.6	74.8	198.0	189.4
1957.....	117.5	68.6	70.9	171.2	165.8
1958.....	125.1	65.7	66.7	190.5	187.5
1959.....	125.2	63.8	64.7	196.1	193.5
1960.....	128.0	62.3	62.9	205.6	203.6
1961.....	116.0	62.2	61.6	186.6	188.3
1962.....	134.7	60.2	59.3	223.6	227.2
1963.....	147.6	59.1	57.4	249.6	257.0
1964.....	140.3	57.6	55.1	243.7	254.7
1964 as percentage of 1946.....	p.c. 128.2	52.6	49.1	243.7	260.9
Annual trend rate of change ¹	p.c. +1.5	-3.6	-3.7	+5.3	+5.4

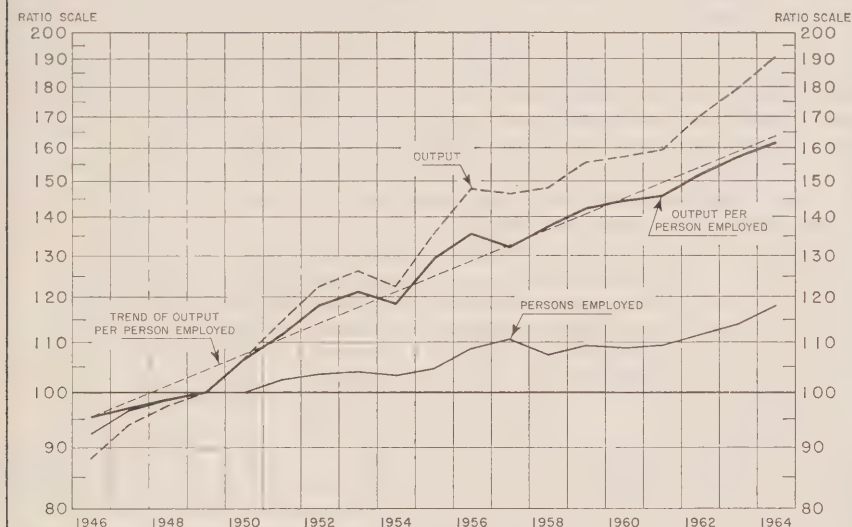
¹ Calculated by fitting a straight line to the logarithms of the data using the least squares method.

14.—Indexes of Output per Person Employed and per Man-Hour, 1946-64—concluded

Year	Output	Persons Employed	Man-Hours	Output per Person Employed	Output per Man-Hour
COMMERCIAL NON-AGRICULTURAL INDUSTRIES					
1946.....	85.3	86.9	88.6	98.1	96.2
1947.....	92.8	94.6	95.4	98.1	97.3
1948.....	96.3	97.8	98.6	98.4	97.6
1949.....	100.0	100.0	100.0	100.0	100.0
1950.....	106.6	102.0	100.1	104.4	106.5
1951.....	113.8	107.7	104.8	105.7	108.6
1952.....	119.0	110.4	106.6	107.8	111.6
1953.....	124.9	112.1	107.5	111.4	116.1
1954.....	124.9	110.6	104.9	113.0	119.1
1955.....	136.1	114.1	107.9	119.3	126.2
1956.....	148.6	121.0	115.0	122.8	129.2
1957.....	150.4	124.5	116.7	120.8	128.8
1958.....	151.0	121.3	112.7	124.5	133.9
1959.....	159.7	124.3	115.5	128.5	138.3
1960.....	161.2	124.2	114.4	129.8	140.9
1961.....	165.5	124.7	113.3	132.7	146.1
1962.....	174.8	128.6	117.5	135.9	148.7
1963.....	183.6	132.0	119.6	139.1	153.5
1964.....	197.0	137.6	124.9	143.2	157.8
1964 as percentage of 1946.....	p.c. 231.1	158.3	140.9	146.0	164.0
Annual trend rate of change ¹	p.c. +4.5	+2.2	+1.5	+2.3	+2.9
MANUFACTURING INDUSTRIES					
1946.....	85.2	90.0	92.3	94.7	92.3
1947.....	93.2	96.3	97.7	96.8	95.4
1948.....	97.3	98.5	100.4	98.8	96.9
1949.....	100.0	100.0	100.0	100.0	100.0
1950.....	106.2	101.7	100.8	104.4	105.3
1951.....	115.0	107.9	104.9	106.5	109.6
1952.....	118.5	110.8	106.7	106.9	111.1
1953.....	126.4	114.2	110.5	110.7	114.3
1954.....	122.9	109.3	103.9	112.4	118.3
1955.....	134.7	112.1	107.1	120.1	125.8
1956.....	145.1	116.8	112.3	124.2	129.2
1957.....	142.9	117.3	111.4	121.8	128.3
1958.....	140.7	111.5	105.9	126.2	132.9
1959.....	149.8	112.8	107.8	132.8	138.9
1960.....	149.3	111.4	105.6	134.0	141.3
1961.....	153.0	110.9	104.7	138.0	146.2
1962.....	164.9	115.4	109.4	142.9	150.8
1963.....	173.9	119.0	112.7	146.1	154.3
1964.....	188.2	124.7	118.7	151.0	158.6
1964 as percentage of 1946.....	p.c. 220.9	138.6	128.6	159.5	171.9
Annual trend rate of change ¹	p.c. +3.9	+1.3	+0.8	+2.7	+3.1
NON-MANUFACTURING INDUSTRIES (COMMERCIAL NON-AGRICULTURAL)					
1946.....	85.3	85.3	86.9	100.0	98.2
1947.....	92.6	93.7	94.3	98.8	98.2
1948.....	95.8	97.5	97.8	98.2	97.9
1949.....	100.0	100.0	100.0	100.0	100.0
1950.....	106.7	102.2	99.7	104.5	107.1
1951.....	113.2	107.5	104.7	105.3	108.1
1952.....	119.2	110.2	106.5	108.2	111.9
1953.....	124.1	111.0	106.1	111.8	116.9
1954.....	125.9	111.2	105.4	113.2	119.5
1955.....	136.9	115.2	108.3	118.8	126.4
1956.....	150.4	123.3	116.3	122.0	129.3
1957.....	154.1	128.3	119.2	120.1	129.3
1958.....	156.2	126.5	115.9	123.5	134.8
1959.....	164.8	130.4	119.0	126.3	138.4
1960.....	167.3	131.0	118.5	127.7	141.2
1961.....	171.9	132.1	117.3	130.1	146.5
1962.....	179.8	135.6	121.3	132.6	148.3
1963.....	188.6	138.9	122.8	135.7	153.6
1964.....	201.5	144.5	127.7	139.5	157.8
1964 as percentage of 1946.....	p.c. 236.3	169.4	147.0	139.5	160.7
Annual trend rate of change ¹	p.c. +4.7	+2.6	+1.8	+2.0	+2.9

¹ Calculated by fitting a straight line to the logarithms of the data using the least squares method.

INDEXES OF OUTPUT PER PERSON EMPLOYED,
COMMERCIAL INDUSTRIES, 1946-64
(1949=100)



Section 4.—Canadian Balance of International Payments*

Canada's total commercial and financial transactions with residents of other countries are presented in summary form in statements of the Canadian balance of international payments. The current account shows separately the principal types of transactions in goods and services with non-residents. The capital account provides a distribution of capital movements into direct and portfolio investments and into long-term and short-term forms. The difference between the current account balance and the balance of these capital movements in an accounting period is reflected in the change in the official holdings of gold, foreign exchange, and Canada's net International Monetary Fund position.

Since the beginning of the 1950's, apart from 1952 when there was a small surplus on current transactions, a wide degree of imbalance has characterized Canada's international payments. Larger current account deficits have customarily been associated with periods of Canadian prosperity. High levels of investment, rising personal consumption and the growth in government expenditures, including defence outlays abroad, have contributed to the deficits. These large current deficits, which reached a peak of \$1,504,000,000 in 1959, have reflected and been financed by substantial inflows of capital. Following this record high level, the imbalances in current transactions narrowed in successive years to \$433,000,000 in 1964.

As 1965 progressed it became clear that, despite further large sales of wheat, the effects of high levels of activity on imports were pointing to a deficit on current account well over twice that of 1964.

* More detailed information is given in DBS annual report *Canadian Balance of International Payments and International Investment Position* (Catalogue No. 67-201) and in *Quarterly Estimates of the Canadian Balance of International Payments* (Catalogue No. 67-001).

Current Account Transactions.—The surplus on merchandise trade,* which emerged in 1961 for the first time since 1954, expanded sharply in 1963 and in 1964 when it reached \$700,000,000; an important element in this rise was the extraordinary sales of wheat and flour to the U.S.S.R. and other communist countries. Net payments on non-merchandise transactions have been at a level of over \$1,000,000,000 since 1959 and amounted in 1964 to \$1,133,000,000. Thus, the reduction of Canada's deficit on current transactions in goods and services between 1959 and 1964 was mainly the result of a shift in the balance of commodity trade. This balance has varied widely; the record deficit of \$728,000,000 occurred in 1956 when it accounted for more than one half of the total current account deficit and the unusually large surplus of \$700,000,000 for 1964 exceeded the level of the merchandise surpluses of the immediate postwar years. The non-merchandise deficit rose steadily from 1952 to a recent peak of \$1,155,000,000 in 1961 but settled at a slightly lower level in the following years because of improvements in the travel, freight and shipping accounts and in migrants' funds.

Since 1954, when merchandise exports and imports were almost equal at \$3,900,000,000, exports have increased fairly steadily to a record, so far, of \$8,240,000,000 in 1964. Imports, on the other hand, have shown wider fluctuations in their growth pattern. The value of imports in current dollars rose more than 40 p.c. in two years to \$5,565,000,000 in 1956 and, except for a substantial drop of nearly 8 p.c. to \$5,066,000,000 in 1958, remained at about that level until 1961. From 1962 through 1964 the value rose successively by roughly 9 p.c., 6 p.c. and 15 p.c. to a record of \$7,540,000,000 in 1964.

In the past decade or so, the relative importance of exports of metals and minerals has increased markedly, that of other materials for industry, such as chemicals and fertilizers, has advanced more moderately, and the percentage shares for farm and forest products have narrowed visibly. The relative position of wheat and wheat flour, which had been diminishing, recovered sharply in 1961 as a result of the large shipments of grain to Mainland China and other communist countries. The very heavy shipments of wheat on the Russian account, together with sizable exports to Britain, Japan, Mainland China, West Germany and Eastern European countries, boosted the total value of wheat and wheat flour exports in 1964 to nearly \$1,100,000,000. During the 1960's, an increasing share of the Canadian national output has moved into foreign markets. About two thirds of the gain of nearly \$1,160,000,000 in merchandise exports to \$8,240,000,000 in 1964 originated from larger shipments—in addition to wheat and flour—of iron ores, non-ferrous metallic ores and alloys, newsprint, wood pulp, fabricated steel materials, cars, trucks, motor vehicle parts and aircraft and parts. Other increases were broadly spread over many commodities, such as barley, fish, whisky, tobacco, lumber, plywood, sulphur, natural gas, chemicals, machinery and equipment. Shipments of uranium decreased, for the fifth successive year. Shipments of highly manufactured products have grown rapidly in the recent period and this group now ranks with the food, forest and mineral product groups. Imports also rose sharply; the machinery group alone contributed over \$200,000,000 of the total rise of \$961,000,000 and less substantial yet large increases were recorded in imports of fabricated steel materials, cars, trucks, motor vehicle parts, engines, electrical apparatus, chemicals and a variety of other commodities including fruits, coffee, oil seeds, fibres and textile products. Imports of raw sugar, meat and crude petroleum were down from the higher levels of 1963.

The 1964 deficit on non-merchandise transactions of \$1,133,000,000 again approached the record level of \$1,155,000,000 reached in 1961 and was more than double that of as recent a year as 1955. A total of \$665,000,000, or close to 60 p.c. of this deficit was directly related to Canada's indebtedness abroad. Interest and dividend payments by Canadians

* Commodity trade statistics have been adjusted to reflect more closely the timing of transactions, particularly for investment goods, and to exclude commodities which are either covered elsewhere in the accounts or are not pertinent for balance of payments purposes.

to non-resident investors reached \$978,000,000, transfers in other forms of investment income amounted to over \$180,000,000, and there were also growing payments abroad for a variety of business services. Furthermore, some hundreds of millions of dollars worth of earnings, which accrued to foreigners but were retained in Canada for reinvestment, are excluded from the current account.

Among non-merchandise transactions in 1964, a noteworthy change was the turn-around of \$74,000,000 in the balance on travel expenditures from a surplus of \$24,000,000 to a deficit of \$50,000,000. This resulted from a one-third decline in net receipts to \$109,000,000 on travel transactions with the United States and a 16-p.c. rise to \$159,000,000 in the deficit with overseas countries. Expenditures in Canada by United States visitors rose to a record \$590,000,000 and Canadian expenditures in the United States, after declining in the preceding two years, climbed to a high of \$481,000,000. Because the increase in Canadian spending overseas was much larger than that in receipts from overseas visitors, net travel payments rose to \$159,000,000 from \$137,000,000 in 1963. The deficit on interest and dividends widened by \$35,000,000 to reach \$665,000,000, as both receipts and payments advanced to record levels. Interest receipts were some \$20,000,000 lower, because of the deferment by British authorities of the regular interest on the 1946 inter-governmental loan, but dividend receipts rose from higher returns on direct investment, including large non-recurring dividend receipts. Sales of new government and corporation bonds to non-residents in 1963 and 1964 brought about increased interest payments and substantial transfers of dividends on direct investment made a considerable contribution to the higher total. The deficit increase of approximately \$30,000,000 in the miscellaneous group of current transactions was accounted for mainly by rising net payments for business services. Included also were official contributions (as distinct from Mutual Aid to NATO countries) of \$69,000,000, up from \$65,000,000 in 1963. Two accounts whose deficits were lower than in 1963 were freight and shipping services and inheritances and migrants' funds. Against the net payments was an amount of \$145,000,000 representing gold production available for export.

The characteristic bilateral distribution of the Canadian current account balances was maintained in 1964; a surplus from transactions with overseas countries partially covered a deficit with the United States. However, a rise of more than 40 p.c. in this deficit from \$1,162,000,000 in 1963 to \$1,655,000,000, which was considerably smaller than the almost twofold increase in the overseas surplus to \$1,222,000,000, contributed to reducing the over-all deficit from \$542,000,000 to \$433,000,000. In current dollars, the 1964 deficit with the United States exceeded the previous record level of \$1,639,000,000 reached in 1956; the surplus on current transactions with Britain rose from \$414,000,000 to a recent high level of \$607,000,000; and the surplus with other overseas countries nearly tripled to \$615,000,000 from \$206,000,000, the latter being just short of the earlier peak established in 1952.

Capital Movements.—Although Canada continued in 1964 to draw substantially on the resources, both real and financial, of the other countries of the world, the net capital inflow of \$796,000,000 (excluding the change in official monetary assets) was well below the \$1,000,000,000-to-\$1,500,000,000 level that prevailed from 1956 to 1962. It was only moderately larger than the net inflow of \$688,000,000 in 1963. Capital movements in long-term forms, covering direct investment, portfolio security transactions, official loans and other long-term investments, amounted to \$853,000,000 in 1964, up considerably from the total of \$637,000,000 in the previous year. The long-term capital inflow exceeded the current account deficit by about 18 p.c.; the years 1963 and 1964 were the first since 1956 in which this excess occurred. Capital movements in short-term forms were on balance outwards in 1964, the flow of \$57,000,000 roughly offsetting an equivalent inflow in 1963.

The net inflow in 1964 of \$255,000,000 of capital for direct investment in foreign-controlled enterprises in Canada was down moderately from 1963 and was the lowest on

record since 1950. On balance, there were significant outflows covering re-purchase of Canadian enterprises and from re-financing. In the main, the inflows continued to reflect investment by foreign corporations in their subsidiaries and branches, which contributed to new capital formation in Canada; manufacturing enterprises and petroleum and natural gas received the largest shares. The flow of direct investment abroad of Canadian capital was estimated at \$140,000,000 in 1964, little changed from the total in 1963.

Capital inflows arising from transactions in Canadian and foreign securities amounted to \$682,000,000 compared with \$471,000,000 in 1963. New issues of bonds sold to investors in the United States were the most important factor in the expanded inflow. In 1964, Canada received a net amount of \$54,000,000 under the arrangements relating to the Columbia River Treaty; the remaining capital movements in long-term forms were largely offsetting. Bank balances and other short-term funds held abroad by Canadian residents reverted in 1963 to the trend characteristic of the 1950's; in that year the net capital outflow was over \$250,000,000 and in 1964 over \$500,000,000, the latter more than offsetting substantial inflows in the form of short-term borrowing, particularly by sales finance and consumer loan companies.

Canada's external monetary assets rose by \$363,000,000 in 1964. The official holdings of gold and foreign exchange increased by \$86,000,000 and Canada's net International Monetary Fund position by \$277,000,000.

Since the shift upward at the beginning of the 1950's, direct investment inflows have been a significant ingredient in the capital account. Continuing and substantial for nearly the entire period, these receipts contributed in particular to resource development and the growth of associated industries. However, from 1956 to 1959 and again in 1963 and 1964, the inflow for direct investment, substantial though it was, was less than the inflow of portfolio capital, as some of the sharply increased demands for new capital were channelled to foreign capital markets through the sale to non-residents of new issues of Canadian bonds and debentures. Corporations, provincial governments and municipalities were all important borrowers.

15.—Current Account Transactions Between Canada and All Countries, 1946-64

(Millions of dollars)

Year	Current Receipts ¹	Current Payments ²	Balance including Mutual Aid Exports	Mutual Aid	Net Balance on Current Account indicating Net Movement of Capital
1946.....	3,365	3,002	+363	—	+363
1947.....	3,748	3,699	+49	—	+49
1948.....	4,147	3,696	+451	—	+451
1949.....	4,089	3,912	+177	—	+177
1950.....	4,297	4,574	-277	-57	-334
1951.....	5,311	5,683	-372	-145	-517
1952.....	5,858	5,494	+364	-200	+164
1953.....	5,737	5,934	-197	-246	-443
1954.....	5,520	5,668	-148	-284	-432
1955.....	6,072	6,548	-476	-222	-698
1956.....	6,621	7,830	-1,209	-157	-1,366
1957.....	6,622	7,970	-1,348	-107	-1,455
1958.....	6,579	7,568	-989	-142	-1,131
1959.....	6,855	8,296	-1,441	-63	-1,504
1960.....	7,153	8,353	-1,200	-43	-1,243
1961.....	7,769	8,716	-947	-35	-982
1962.....	8,424	9,257	-833	-41	-874
1963 ^r	9,285	9,804	-519	-23	-542
1964.....	10,723	11,109	-386	-47	-433

¹ Includes Mutual Aid exports.

² Excludes Mutual Aid offsets.

16.—Geographical Distribution of the Balance on Current Account Between Canada and Other Countries, 1946-64

(Millions of dollars)

Year	United States ¹	Britain	Other Overseas Countries	All Countries	Year	United States ¹	Britain	Other Overseas Countries	All Countries
1946.....	-607	+500	+470	+363	1956.....	-1,639	+252	+21	-1,366
1947.....	-1,134	+633	+550	+49	1957.....	-1,579	+118	+6	-1,455
1948.....	-393	+486	+358	+451	1958.....	-1,176	+104	-59	-1,131
1949.....	-601	+446	+332	+177	1959.....	-1,230	+13	-287	-1,504
1950.....	-400	+24	+42	-334	1960.....	-1,361	+166	-48	-1,243
1951.....	-951	+223	+211	-517	1961.....	-1,386	+187	+217	-982
1952.....	-849	+388	+625	+164	1962.....	-1,122	+218	+30	-874
1953.....	-904	+133	+328	-443	1963 ²	-1,162	+414	+206	-542
1954.....	-807	+229	+146	-432	1964.....	-1,655	+607	+615	-433
1955.....	-1,035	+330	+7	-698					

¹ Includes all net exports of non-monetary gold.

17.—Balance of International Payments Between Canada and All Countries, 1958-64

(Millions of dollars)

Item	1958	1959	1960	1961	1962 ²	1963 ²	1964
A. CURRENT RECEIPTS—							
Merchandise exports (adjusted).....	4,887	5,150	5,392	5,889	6,380	7,082	8,240
Mutual Aid to NATO countries.....	142	63	43	35	41	23	47
Gold production available for export.....	160	148	162	162	155	154	145
Travel expenditures.....	349	391	420	482	562	609	662
Interest and dividends.....	168	182	173	209	202	230	313
Freight and shipping.....	401	420	442	486	509	563	645
All other current credits.....	472	501	521	506	575	624	671
TOTALS, CURRENT RECEIPTS.....	6,579	6,855	7,153	7,769	8,424	9,285	10,723
B. CURRENT PAYMENTS—							
Merchandise imports (adjusted).....	5,066	5,572	5,540	5,716	6,203	6,579	7,540
Travel expenditures.....	542	598	627	642	605	555	712
Interest and dividends.....	612	671	653	770	794	860	978
Freight and shipping.....	460	525	533	568	595	648	685
Official contributions ¹	185	135	104	91	77	88	116
All other current debits.....	835	858	939	964	1,024	1,067	1,125
TOTALS, CURRENT PAYMENTS.....	7,710	8,359	8,396	8,751	9,298	9,827	11,156
Balance on merchandise trade.....	-179	-422	-148	-173	+177	+503	+700
Balance on other transactions.....	-952	-1,082	-1,095	-1,155	-1,051	-1,045	-1,133
C. CURRENT ACCOUNT BALANCE.....	-1,131	-1,504	-1,243	-982	-874	-542	-433
D. CAPITAL ACCOUNT—							
Direct Investment—							
Direct investment in Canada.....	+420	+550	+650	+520	+495	+280	+255
Direct investment abroad.....	-48	-80	-50	-75	-109	-135	-140
Canadian Securities—							
Trade in outstanding issues.....	+88	+201	+54	+100	-52	-131	-20
New issues.....	+677	+707	+447	+538	+728	+984	+1,123
Retirements.....	-158	-258	-265	-300	-320	-404	-358
Foreign security transactions.....	+3	-33	-19	-34	-65	+22	-63
Net repayments on Government of Canada loans	+30	+33	+32	+37	+107	+7	-1
Change in Canadian dollar holdings of foreigners	+105	+16	+123	-26	-13	+17	+12
Other capital movements ²	+123	+357	+232	+512	+258	+48	-12
E. NET CAPITAL MOVEMENT, EXCLUSIVE OF CHANGES IN OFFICIAL HOLDINGS.....	+1,240	+1,493	+1,204	+1,272	+1,029	+688	+796
H. OFFICIAL HOLDINGS OF GOLD AND FOREIGN EXCHANGE—							
Change in holdings.....	+109	-70	-39	+229	+537	+60	+86
Net International Monetary Fund position.....	—	+59	—	+61	-378	+86	+277
Other special international financial assistance.....	—	—	—	—	-4	—	—

¹ Includes Mutual Aid to NATO countries.² Includes unrecorded capital movements, errors and omissions.

18.—Current and Capital Account Transactions Between Canada and the United States, 1958-64

(Millions of dollars)

Item	1958	1959	1960	1961	1962	1963*	1964
A. CURRENT RECEIPTS—							
Merchandise exports (adjusted).....	2,908	3,191	3,040	3,213	3,760	3,970	4,396
Gold production available for export.....	160	148	162	162	155	154	145
Travel expenditures.....	309	351	375	435	512	549	590
Interest and dividends.....	100	99	102	109	120	155	171
Freight and shipping.....	206	228	220	230	259	279	297
All other current receipts.....	327	363	380	361	392	401	418
TOTALS, CURRENT RECEIPTS.....	4,010	4,380	4,279	4,510	5,198	5,508	6,017
B. CURRENT PAYMENTS—							
Merchandise imports (adjusted).....	3,443	3,727	3,713	3,828	4,205	4,458	5,207
Travel expenditures.....	413	448	462	459	419	388	481
Interest and dividends.....	500	547	531	642	661	727	823
Freight and shipping.....	294	326	324	333	353	378	394
All other current payments.....	536	562	610	634	682	719	767
TOTALS, CURRENT PAYMENTS.....	5,186	5,610	5,640	5,896	6,320	6,670	7,672
C. CURRENT ACCOUNT BALANCE.....	-1,176	-1,230	-1,361	-1,386	-1,122	-1,162	-1,655
D. CAPITAL ACCOUNT—							
Direct Investment—							
Direct investment in Canada.....	+303	+424	+446	+335	+318	+220	+195
Direct investment abroad.....	-3	-7	-19	-26	-7	-36	-61
Canadian Securities—							
Trade in outstanding issues.....	+60	+94	+47	+196	+72	-64	-13
New issues.....	+600	+622	+381	+473	+691	+930	+1,067
Retirements.....	-132	-211	-214	-215	-249	-315	-278
Foreign security transactions.....	+2	-36	+4	-7	-55	+25	-53
Change in Canadian dollar holdings of foreigners	+83	+8	+60	-23	+24	+7	+15
Other capital movements.....	+147	+447	+285	+633	+283	+83	+883
E. NET CAPITAL MOVEMENT.....	+1,060	+1,341	+990	+1,366	+1,091	+850	+1,755
F. BALANCE SETTLED BY EXCHANGE TRANSFERS....	+224	-178	+332	+247	+566	+371	-69
H. OFFICIAL HOLDINGS OF GOLD AND FOREIGN EXCHANGE—							
Change in holdings.....	+108	-67	-39	+227	+538	+59	+31
Other special international financial assistance..	—	—	—	—	-3	—	—

19.—Current Account Transactions Between Canada and Britain, 1958-64

(Millions of dollars)

Item	1958	1959	1960	1961	1962	1963*	1964
A. CURRENT RECEIPTS—							
Merchandise exports (adjusted).....	766	781	924	924	924	1,017	1,219
Travel expenditures.....	18	18	20	21	22	28	33
Interest and dividends.....	32	35	32	34	29	31	81
Freight and shipping.....	84	80	93	100	98	105	132
All other current receipts.....	60	69	76	74	91	117	139
TOTALS, CURRENT RECEIPTS.....	960	983	1,145	1,153	1,164	1,298	1,604
B. CURRENT PAYMENTS—							
Merchandise imports (adjusted).....	537	618	611	593	578	521	584
Travel expenditures.....	52	62	70	71	71	70	80
Interest and dividends.....	76	90	83	86	89	82	97
Freight and shipping.....	70	85	89	93	88	94	98
All other current payments.....	121	115	126	123	120	117	138
TOTALS, CURRENT PAYMENTS.....	856	970	979	966	946	884	997
C. CURRENT ACCOUNT BALANCE.....	+104	+13	+166	+187	+218	+414	+607

Section 5.—Canada's International Investment Position*

Canada's balance of payments is influenced to a considerable extent by the size and character of its balance of international indebtedness, a phrase used in the broad sense generally accepted in balance of payments terminology to include equity investments as well as contractual borrowings. This is true not only through the servicing of capital involving interest, dividends and miscellaneous income payments, but also through the influences of foreign investment on the Canadian economy and on the shape and direction of its external demands.

Canada has been among the world's largest importers of private long-term capital. The very substantial capital formation which was a feature particularly of the 1950's was associated with an unprecedented growth in the country's external liabilities. These investments contributed to a rapid rate of growth in the Canadian economy, particularly in the exploitation of natural resources, and added significantly to Canadian production, employment and income. At the same time they added substantially to the continuing burden of Canada's external debt and to the proportion of Canadian industry controlled by non-residents.

Canada's gross external liabilities amounted to \$30,500,000,000 at the end of 1963; non-resident-owned long-term investments in Canada had reached a book value of \$26,200,000,000 (in the two decades since World War II their value has quadrupled). The part of these investments in establishments controlled outside of Canada totalled \$15,400,000,000. These direct investments have been growing more rapidly than the total. Investments in other Canadian equities, although smaller, have also been substantial and there have been periods in recent years of sharp increase in foreign holdings of Canadian bonds and debentures.

Investments of non-resident capital have been closely related to the high rate of growth in Canada and to the heavy demands placed on capital markets by this factor and by the financial needs of governments and municipalities. Large development projects have been initiated and financed by investors from other countries and the growth effects from this investment have, in turn, led to Canadian borrowing in capital markets outside of Canada. While capital inflows have been the principal source of the increased indebtedness abroad, another substantial contributor has been the earnings from non-resident-controlled branches and subsidiaries which were retained in Canada. New resource industries depending to a large extent on non-resident financing include all branches of the petroleum industry, iron ore, potash and other mining, aluminum, nickel, pulp and paper, and chemical industries. In addition, secondary industry has also benefited from non-resident investment.

Canada's gross external assets totalled \$11,200,000,000 at the end of 1963 and government-owned assets made up a substantial part of that total. Canada's net balance of international indebtedness, including equity investments, at the same date was estimated at \$19,300,000,000, more than three quarters of which was incurred since 1950. By the end of 1965, Canada's net balance of international indebtedness had risen to about \$21,500,000,000.

Foreign Investments in Canada.—Dependence upon external sources of capital for financing in periods of heavy investment activity has been characteristic of Canadian development. During the exceptional growth that occurred before World War I, non-resident investment was very high and the main source of that investment was London. However, during the first part of the inter-war period, the United States became the principal source of external capital and by 1926 the portion of Canada's international debt owned in that country exceeded that owned in Britain. With some interruption during the 1930's, United States investment in Canada continued to increase, particularly after 1947 when the period of intense activity in the petroleum industry got under way. Nearly half

* An extended historical review appears in DBS report *Canada's International Investment Position, 1926 to 1954* (Catalogue No. 67-503) and more recent statistics in the annual report *Canadian Balance of International Payments and International Investment Position* (Catalogue No. 67-201). Additional detailed material will be found in the annual report under the Corporations and Labour Unions Returns Act.

of the United States investment in Canada at the end of 1963 was accumulated since 1955. At \$20,488,000,000, United States investments in the later year continued to represent more than three quarters of all non-resident investments in Canada and made up 80 p.c. of the increase since 1955. The main rise occurred in direct investments in companies controlled in the United States, which almost doubled in the 1955-63 period. In the same period, portfolio investments in Canada owned in the United States more than doubled, due mainly to large sales of new issues of securities made in that country.

British investments in Canada totalled \$3,331,000,000 at the end of 1963 and accounted for only about 14 p.c. of the total non-resident investments in Canada compared with 36 p.c. at the end of 1939 before most of the wartime repatriations. After growing each year from a low point in 1948 to 1962, the value of British investments in Canada declined slightly in 1963, reflecting in part Canadian repatriation of investments in railways and other utilities.

Investments of countries other than the United States and Britain reached a record total of \$2,384,000,000 at the end of 1963. Exceeding four times the 1953 figure, this represented a much higher rate of increase than had occurred in either United States or British investments and large increases had taken place in portfolio holdings of securities as well as in direct investments. At about 9 p.c. of the total, compared with 5 p.c. in 1953, this group of countries, mostly in Western Europe, accounted for a slightly smaller proportion of total foreign investments than in 1960 and 1961. Over 90 p.c. of the direct investments, which totalled \$943,000,000 in 1963, also came from Western Europe; more than one quarter was of Netherlands origin, with Belgian, French, Swiss and German investments making up the next largest groups.

The degree of dependence upon non-resident capital for financing Canadian investment has been relatively much less in the postwar period than in the earlier periods of exceptional expansion, even though the rise in non-resident investments has been so great. Thus, from 1950 to 1955 the net use of foreign resources amounted to about one fifth of net capital formation in Canada, and direct foreign financing amounted to about one third. But from 1956 to 1960 when these ratios had increased considerably to 33 p.c. and 45 p.c., respectively, they were still less than the corresponding ratios in the 1929 to 1930 period when inter-war investment activity was at its highest point. In that shorter period more than one half of net capital formation was financed from outside of Canada, and in the period of heavy investment before World War I an even larger ratio of investment was financed by external capital. In considering these changes it should be noted that for a decade and a half, between 1934 and 1949, Canada was a net exporter of capital and that Canadian assets abroad have been rising over a long period.

It should also be noted that the above ratios relate to the place of non-resident investments in all spheres of development including those where Canadian sources of financing predominate such as in merchandising, agriculture, housing, public utilities and other forms of social capital. Thus, non-resident financing of manufacturing, petroleum and mining has been much higher than the over-all ratios indicate and has provided the major portion of the capital investment in this field in the period since 1948. The most recent comprehensive calculation of the ratios of non-resident ownership in Canadian manufacturing, mining and petroleum is for the year 1962 and it should be noted that subsequent changes may have increased non-resident ownership even more. In that year the Canadian manufacturing industry was 54 p.c. owned by non-residents but capital subject to foreign control was 60 p.c. These proportions compared with 47 p.c. and 51 p.c., respectively, as recently as the end of 1954. In the field of petroleum and natural gas, non-resident ownership and control amounted to 63 p.c. and 74 p.c., respectively, at the end of 1962 whereas at the end of 1954 non-resident ownership and control had amounted to 60 p.c. and 69 p.c., respectively; in mining and smelting, non-resident ownership and control amounted to 63 p.c. and 58 p.c., respectively, compared with 53 p.c. and 51 p.c. in 1954. However, resident-owned Canadian capital continued to play a leading role in the financing

of such areas of business as merchandising, railways and other public utilities. Hence non-resident ownership in a broad range of business activity, including manufacturing, petroleum, mining, merchandising and railways and utilities, rose only slightly from 32 p.c. in 1948 to 35 p.c. in 1962. But, in the same years, companies subject to non-resident control increased from 25 p.c. to 34 p.c. their share of the total even in this broad area of business, a trend also evident in many subdivisions of the manufacturing and extractive industries.

Another basis of judging the place of foreign-controlled business in Canadian industry is provided by a special study of production and employment in the larger Canadian manufacturing establishments controlled in the United States. The enterprises having an investment in Canada of \$1,000,000 or more accounted for about 30 p.c. of Canadian manufacturing production in 1953 and 21 p.c. of employment in that field. These ratios in non-resident-controlled plants were considerably higher than in 1946—the previous year for which a study of this kind was made. In some industries the proportions of production and employment in plants controlled in the United States were much higher than this. Automobiles, for example, are mainly produced in United States-controlled plants, but this is exceptional. Among other industries where well over one half of the production is in United States-controlled firms are the smelting and refining of non-ferrous metals, petroleum refining, rubber products and motor vehicle parts. In several major industries like electrical apparatus and supplies and non-ferrous metal products, the distribution of control between Canadian and United States-controlled companies is more even. In other industries the non-resident share is large although less than one half the total. These include pulp and paper, other paper products, chemicals, medicinal and pharmaceutical products, sheet-metal products and certain branches of the machinery industry.

There are, however, many industries where the largest part of production is in Canadian-controlled plants. Prominent among these are such important branches of industry as primary iron and steel and some other subdivisions of the iron and steel industry, textiles, clothing, and such divisions of the food and beverage group as bakery products, beverages and dairy products. But even in some of these industries changes of ownership and control have been occurring in recent years.

Data collected under the Corporations and Labour Unions Returns Act (CALURA) provided further insight into the place of non-resident-owned corporations in the Canadian economy in 1962. The proportion of assets of reporting corporations in mining and manufacturing held by corporations more than 50 p.c. non-resident owned was 65 p.c. in mining and 77 p.c. in primary processing (reaching 99 p.c. in petroleum and coal products); for this group as a whole it was 71 p.c. In other primary manufacturing it was 37 p.c., ranging between 85 p.c. for tobacco and 13 p.c. for beverages. In secondary manufacturing the proportion of assets of reporting corporations held by corporations more than 50 p.c. non-resident owned was 62 p.c., ranging from 92 p.c. for rubber products to 11 p.c. for printing and publishing. In other industrial groupings the proportions ranged between 35 p.c. for wholesale trade and 11 p.c. for gas and electric utilities, with finance, retail trade, construction, transportation and other industries falling in between. It may be noted, however, that in some of these industries significant proportions would be exempt from reporting under the provisions of the Act and these would tend to lower the percentage.

A wide variety of indicators reveal the importance in Canada of foreign-owned establishments. Among the companies reporting under CALURA in the size groups with assets of over \$25,000,000, more than half the profits were derived by corporations more than 50 p.c. owned by non-residents and, including smaller reporting corporations, their share was some 46 p.c.; in manufacturing and mining it was over 56 p.c. It should be remembered, however, that some industries have important Canadian-controlled units which are exempt from reporting.

18.—Estimate of the Canadian Balance of International Indebtedness, as at Dec. 31, 1939-63

NOTE.—Totals are rounded and may not represent the sum of their components.
(Billions [¹000 millions] of dollars)

Item	1939 ^r	1945 ^r	1949 ^r	1959 ^r	1960 ^r	1961 ^r	1962	1963
Canadian Liabilities—								
Direct investments.....	2.3	2.7	3.6	11.9	12.9	13.7	14.7	15.4
Government and municipal bonds.....	1.7	1.7	1.8	3.1	3.3	3.4	3.7	4.2
Other portfolio investments.....	2.6	2.4	2.3	4.6	4.6	4.7	4.7	4.7
Miscellaneous investments.....	0.3	0.3	0.3	1.3	1.4	1.7	1.8	1.8
Foreign Long-Term Investments in Canada.....	6.9	7.1	8.0	20.9	22.2	23.6	24.9	26.2
Equity of non-residents in Canadian assets abroad.....	0.2	0.2	0.3	1.0	1.1	1.2	1.3	1.4
Canadian dollar holdings of non-residents.....	0.3	0.3	0.4	0.5	0.6	0.6	0.6	0.6
Gross Liabilities¹.....	7.4	7.6	8.7	22.4	24.0	25.4	26.8	28.2
United States ¹	4.5	5.4	6.4	17.0	18.0	19.3	20.6	22.0
Britain ¹	2.6	1.8	1.8	3.4	3.5	3.5	3.6	3.5
Other countries ^{1,2}	0.3	0.4	0.5	2.1	2.4	2.5	2.6	2.7
Short-term payables ³.....	..	0.6	0.6	1.4	1.6	1.9	2.0	2.3
Gross Liabilities.....	7.4	8.2	9.3	23.8	25.6	27.3	28.8	30.5
Canadian Assets—								
Direct investments.....	0.7	0.7	0.9	2.3	2.5	2.6	2.8	3.1
Portfolio investments.....	0.7	0.6	0.6	1.2	1.3	1.5	1.7	1.8
Government of Canada loans and advances.....	—	0.7	2.0	1.5	1.5	1.4	1.3	1.3
Government of Canada subscriptions to international investment agencies.....	—	—	0.1	0.1	0.1	0.1	0.1	0.1
Miscellaneous investments ⁴	—	—	—	—	—	0.1	0.3	0.4
Canadian Long-Term Investments Abroad.....	1.4	2.0	3.6	5.0	5.3	5.7	6.2	6.7
Government of Canada holdings of gold and foreign exchange.....	0.5	1.7	1.2	1.8	1.8	2.2	2.7	2.8
Net IMF position.....	—	—	0.1	0.1	0.2	0.2	-0.1	-0.1
Other Canadian short-term holdings of exchange.....	—	0.1	0.1	1.0	1.2	1.1	1.0	1.3
Gross Assets¹.....	1.9	3.9	5.1	8.0	8.5	9.2	9.8	10.7
Government of Canada holdings of gold, foreign exchange and net IMF position..	0.5	1.7	1.3	1.9	2.0	2.4	2.6	2.7
United States ^{1,5}	0.9	1.0	1.3	3.3	3.7	3.9	4.1	4.8
Britain ^{1,5}	0.1	0.7	1.6	1.4	1.5	1.5	1.6	1.9
Other countries ^{1,2}	0.4	0.5	0.9	1.3	1.3	1.4	1.5	1.2
Short-term receivables ⁵.....	..	0.1	0.2	0.5	0.5	0.5	0.5	0.5
Gross Assets.....	1.9	4.0	5.3	8.5	9.0	9.7	10.3	11.2
Canadian Net International Indebtedness—Net Liabilities.....	5.5¹	4.2	4.0	15.3	16.6	17.6	18.5	19.3
Government of Canada holdings of gold, foreign exchange and net IMF position..	-0.5	-1.7	-1.3	-1.9	-2.0	-2.4	-2.6	-2.7
United States ^{1,5}	3.6	4.4	5.1	13.6	14.3	15.4	16.5	17.2
Britain ^{1,5}	2.5	1.1	0.2	1.9	2.0	2.0	2.0	1.6
Other countries ^{1,2}	-0.1	-0.1	-0.4	0.8	1.1	1.1	1.1	1.4
Short-term indebtedness ⁵.....	..	0.4	0.4	1.0	1.1	1.4	1.6	1.8

¹ Excludes short-term receivables and payables.² Includes international investment agencies.³ Country distribution not available.⁴ Includes reserve against inactive assets.⁵ Excludes Government of Canada holdings of gold and foreign exchange.

19.—Foreign Capital Invested in Canada, by Type of Investment, as at Dec. 31, 1930-63

(Millions of dollars)

Type of Investment	1930	1945	1951	1959	1960	1961 ¹	1962	1963
Government Securities—								
Federal.....	682	726	1,013	612	611	657	788	899
Provincial.....	592	624	771	1,585	1,632	1,743	1,862	2,217
Municipal.....	432	312	319	915	1,026	1,038	1,087	1,091
Totals, Government Securities.....	1,706	1,662	2,103	3,112	3,269	3,438	3,737	4,207
Public Utilities—								
Railways.....	2,244	1,599	1,436	1,405	1,406	1,366	1,270	1,240
Other (excluding pipelines and public enterprises).....	634	493	524	739	743	656	691	590
Totals, Public Utilities.....	2,878	2,092	1,960	2,144	2,149	2,022	1,961	1,830
Manufacturing (excluding petroleum refining)	1,459	1,723	2,715	5,726	6,115	6,446	6,731	7,074
Petroleum and natural gas.....	150	160	693	3,455	3,727	4,029	4,384	4,703
Other mining and smelting.....	311	356	586	1,783	1,977	2,094	2,297	2,347
Merchandising.....	190	220	377	878	872	917	972	1,003
Financial.....	543	525	595	2,190	2,380	2,616	2,688	2,847
Other enterprises.....	82	70	120	284	297	348	366	361
Miscellaneous investments.....	295	284	328	1,285 ¹	1,428	1,696	1,753	1,831
Totals, Investment.....	7,614	7,092	9,477	20,857	22,214	23,606	24,889	26,203
United States ²	4,660	4,990	7,259	15,826	16,718	18,001	19,155	20,488
Britain ²	2,766	1,750	1,778	3,199	3,359	3,381	3,399	3,331
Other countries.....	188	352	440	1,832	2,137	2,224	2,335	2,384

¹ New series.² Includes some investments held for residents of other countries.**20.—Foreign Capital Invested in Canada by Type of Investment, classified by Estimated Distribution of Ownership, as at Dec. 31, 1963**

NOTE.—Common and preferred stocks are at book values as shown in the balance sheets of the issuing companies; bonds and debentures are valued at par; and liabilities in foreign currencies are converted into Canadian dollars at par of exchange.

Type of Investment	Estimated Distribution of Ownership			Total Investments of Non-residents
	United States ¹	Britain ¹	Other Countries	
	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Government Securities—				
Federal.....	695	34	170	899
Provincial.....	2,127	58	32	2,217
Municipal.....	1,047	29	15	1,091
Totals, Government Securities.....	3,869	121	217	4,207
Public Utilities—				
Railways.....	485	584	171	1,240
Other (excluding pipelines and public enterprises).....	505	53	32	590
Totals, Public Utilities.....	990	637	203	1,830
Manufacturing (excluding petroleum refining)	5,703	1,032	339	7,074
Petroleum and natural gas.....	3,945	380	378	4,703
Other mining and smelting.....	2,054	161	132	2,347
Merchandising.....	698	250	55	1,003
Financial.....	2,033	481	333	2,847
Other enterprises.....	292	48	21	361
Miscellaneous investments.....	904	221	706	1,831
Totals, Investments.....	20,488	3,331	2,384	26,203

¹ Includes some investments held for residents of other countries.

Canadian Assets Abroad.—Although there has been a great growth in non-resident investment in Canada and in the balance of indebtedness of other countries, it will be noted that Canadian assets abroad, shown in Tables 18, 21 and 22, have continued to rise in value each year. These now equal a larger proportion of liabilities abroad than was the case before World War II, but more than one third of the increase since then has been in government-owned assets such as the official reserves and the loans by the Canadian Government to other governments which were extended during the war and early postwar years. At the end of 1963 the government credits outstanding had a value of \$1,285,000,000 while official holdings of exchange and Canada's net IMF position amounted to some \$2,700,000,000 in terms of Canadian dollars. Other official Canadian assets include Canada's subscriptions to the capital of the International Bank for Reconstruction and Development, the International Development Association and the International Finance Corporation which, by March 1964, amounted to \$80,500,000, \$32,800,000 and \$3,500,000, respectively; these were partly offset by liabilities to these institutions.

The portion of the assets in private investments, particularly in the form of direct investments abroad by Canadian companies, is still small in relation to the corresponding non-resident stake in equities in Canada. Private long-term investments abroad by Canadians in 1963 were made up of direct investments of \$3,145,000,000 and portfolio investments of \$1,797,000,000. About two thirds of the privately owned investments were located in the United States. Direct investments in that country by Canadian businesses have grown rapidly and are found in many fields, among which the beverage and farm implement industries are particularly noteworthy.

Private investments in overseas countries are widely distributed. Somewhat more than one half of the total in 1963 were located in Commonwealth countries, with slightly more in Britain than in the remainder of the Commonwealth. Most of the direct investments in Britain were in industry, while in other Commonwealth countries investments in mining were of almost equal importance with those in industry. In foreign overseas countries the largest part is in the countries of Latin America where Canadian holdings in public utilities are substantial.

21.—Canadian Long-Term Investments Abroad, 1939-63

NOTE.—Excludes investments of insurance companies and banks (held mainly against liabilities to non-residents). Canada's subscriptions to international investment agencies, and miscellaneous investments (Table 18). Holdings of stocks are at book values as shown in the books of issuing companies; holdings of bonds are shown at par values. Foreign currencies are converted into Canadian dollars at current market rates. The series for portfolio investment was reconstructed in 1952 and is not strictly comparable with preceding years.

(Millions of dollars)

Assets	1939 ^c	1948 ^c	1956 ^c	1957 ^c	1959 ^c	1960 ^c	1961 ^c	1962	1963
Direct investments in businesses outside Canada.....	671	788	1,891	2,073	2,295	2,481	2,628	2,821	3,145
Portfolio holdings of foreign securities.....	719	605	1,006	1,068	1,183	1,315	1,471	1,723	1,797
Government credits.....	31	1,878	1,587	1,560	1,495	1,462	1,424	1,301	1,285
Totals.....	1,421	3,271	4,484	4,701	4,973	5,258	5,523	5,845	6,227

22.—Canadian Long-Term Investments Abroad, by Location, as at Dec. 31, 1963

NOTE.—See headnote to Table 21.

Location of Investment	Direct Investments	Portfolio Investments		Government Credits	Total Investments
		Stocks	Bonds		
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
United States.....	1,997	1,197	111	—	3,305
Britain.....	385	53	16	1,039	1,493
Other Commonwealth countries.....	366	13	29	29	437
Other foreign countries.....	397	259	119	217	992
Totals.....	3,145	1,522	275	1,285	6,227

Section 6.—The Economic Council of Canada

The Economic Council of Canada, a Crown corporation established by Act of Parliament (SC 1963, c. 11) assented to on Aug. 2, 1963, is an independent economic advisory body with broad terms of reference. Its research, analysis and recommendations on a wide range of economic and social matters are designed to help governments and private groups in developing their own longer-term plans, programs and policies. The Council consists of 28 members appointed by the Governor in Council. Included are a chairman and two directors who serve on a full-time basis in their capacity as professional economists, and 25 part-time members who are representative of industry, labour, finance and commerce, agriculture and the other primary industries, and the general public. There are no officials or representatives of government among its members and the Council has no executive or administrative functions.

The central features of the Council's duties are "to advise and recommend . . . how Canada can achieve the highest possible levels of employment and efficient production in order that the country may enjoy a high and consistent rate of economic growth and that all Canadians may share in rising living standards; to recommend what government policies . . . will best help to realize the potentialities of growth of the economy; to consider means of strengthening and improving Canada's international financial and trade position; . . . to study how national economic policies can best foster the balanced economic development of all areas of Canada . . .". Such duties, and others stated in the Act, encompass the basic economic and social goals that have come to be widely accepted in all modern states. These aims usually are briefly stated as full employment, a high rate of economic growth, reasonable stability of prices, a viable balance of payments, and an equitable distribution of rising incomes. Since the Second World War, in a period of accelerating change, the consistent and simultaneous achievement of such objectives has become a major preoccupation of public policy. An increasing number of countries have sought to develop special procedures and machinery to facilitate the attainment of such goals. The creation of the Economic Council of Canada is a part of this development.

In its First Annual Review* the Council stated its underlying philosophy of approach in this way:

"We are concerned not with the question of inventing new forms of intervention, but rather with ordering and developing our policies and social programmes in a rational and coherent manner designed to accomplish consistently what the society has declared to be its economic and social goals. For this purpose it is essential to bring to bear the needs of the future on the decisions of today. This applies not only to decisions by governments but also to decisions in the private sector of the economy."

* Economic Council of Canada, *First Annual Review: Economic Goals for Canada to 1970*. Queen's Printer, Ottawa, December 1964. \$3.50 (Catalogue No. EC 21-1/1964).

In examining the potentialities of the Canadian economy to 1970, the Council in its *First Annual Review* said that the most striking single feature is the tremendous increase in Canada's labour force. The rate of increase in the 1965-70 period is expected to average 2.6 p.c. a year—a rate several times that anticipated in most European countries and well over that in prospect for the United States. Numerically, the Canadian increase would total about 1,000,000 workers in the 1965-70 period. This tremendous labour force growth was considered by the Council in the light of the goal of full employment. In no country does this goal mean that everyone in the labour force must be employed; there is always some voluntary unemployment as well as some that is unavoidable as workers move from one job to another. The Council concluded that 3 p.c. unemployment as an average annual rate would be a practical, realistic objective to be aimed at over the remainder of the 1960's, although it stressed that improved manpower policies (including better labour mobility and higher levels of education and skills) would make it possible to aim at a higher employment potential over the longer term. To attain the "full employment" objective in the face of the large labour force increase, Canada would require a net addition of 1,500,000 jobs in the seven-year period ending in 1970. This is approximately the same gain in total employment that occurred over the previous 14 years.

The Council also placed strong emphasis on increased efficiency—on sustained advances in productivity, which are the essence of economic growth and the real source of improvements in average living standards. Basing its judgment on postwar trends, the Council estimated that, with a reduction of the degree of slack existing in the economy in 1963, output per person employed would increase at an average rate of 2.4 p.c. a year over the period to 1970. This productivity potential was combined with the very rapid rate of expansion required in employment, averaging approximately 3 p.c. a year to 1970, to indicate a potential average rate of growth of output of 5.5 p.c. a year in real terms—that is, in terms of volume, after adjustment for price changes. The Council emphasized that its calculations of potential output to 1970 did not represent forecasts of anticipated trends but rather reasoned appraisals of consistent possibilities for the future. The achievement of such an average annual rate over the whole 1963-70 period would mean an aggregate increase of 50 p.c. in total real output and an increase of over 20 p.c. in real per capita income.

Examining the goal of reasonable stability of prices, the Council said that rates of change in prices and costs to 1970 within Canada's flexible market system should be contained within the limits of the range of movements over the decade from 1953 to 1963. Over this decade, for example, the average annual increases in consumer prices and in prices of all goods and services produced in Canada were 1.4 p.c. and 2.0 p.c., respectively, with some moderate year-to-year variations around these rates.

A "viable balance of payments" was taken by the Council to mean not merely the maintenance of a capability for attaining adequate total international receipts to cover international payments, but also to mean a strengthening of Canada's international economic position in the sense that the possible current account payments deficit (which might be of the order of \$1,500,000,000 to \$2,000,000,000 at potential output in 1970) would be lower in relation to total output (and also that the corresponding net capital inflow would be smaller in relation to domestic investment) than has been the case under comparable past conditions of rapidly rising domestic activity. In short, such a performance would call for some improvement in the basic competitive posture of the Canadian economy.

To meet its interrelated goals and targets, the Council called for an appropriate combination of expansionary measures and policies in the fiscal, monetary and trade fields. In particular, the achievement of its goals would require Canada to participate fully in the new possibilities for an expansion of world trade. There was also a requirement for more adequate measures to facilitate the necessary mobility of productive resources from declining to expanding situations within a rapidly changing economy.

Economic Performance in Relation to Goals

In its *Second Annual Review** published in December 1965, the Council appraised Canada's progress toward the attainment of these basic goals. After considering many factors, the Council's main conclusion was that the Canadian economy moved toward consistently higher standards of performance over the first half of this decade. However, by 1965, following a strong and sustained over-all expansion, some questions arose regarding the possible emergence of imbalances, pressures and distortions which might undermine the economy's capacity for maintaining these standards of performance into the future. In this perspective the Council appraised certain special areas of concern:—

Investment.—In its *First Annual Review*, the Council indicated that, to attain potential output by 1970, the volume of total business fixed investment would have to increase at an average rate of about 10 p.c. a year. In 1963-65 this investment increased by some 16 p.c. a year—a rate of increase which is not sustainable on a long-term basis to 1970 and beyond, the Council observed. During 1965, concern developed about the possibility of severe pressures, especially in the construction industry where shortages of skilled workers appeared along with scattered evidence of strains on capacity. Some cost and price pressures also emerged. The Council saw a need for a somewhat slower rate of advance in construction activity, supported by more vigorous and effective efforts to enlarge the manpower resources and capacity of the construction industry. This underlined the more general need for an appropriate and effective means of facilitating adequate mobility, training and retraining of manpower—a conclusion that had a broader application than in the construction industry alone.

Labour Market Conditions.—There was increasing evidence in 1965 of shortages of manpower in a widening range of occupations and skills and in a growing number of localities. One of the dangers of this kind of situation is that if the shortages become severe before the over-all level of unemployment has been reduced to a satisfactory low level they will spawn cost and price pressures that will be transmitted to other parts of the economy. It was for this reason that the Council in 1964 emphasized the urgent need for improved labour-market and manpower policies. The Council said its view was reinforced by developments in 1965, when the economy appeared to have begun to encounter certain elements of severe labour shortages while the over-all rate of unemployment, although substantially reduced from earlier years, was still around 4 p.c.

Prices.—The Government in 1965 asked the Economic Council to examine the relationships between prices, costs, productivity and incomes in the context of sustained high standards of performance in the economy. The Council expected to report on these issues in 1966. Meanwhile, in its *Second Annual Review*, the Council observed that price increases in Canada in 1965 were slightly above the average annual rates of increase in 1953-63, which the Council had indicated should be the average standard of performance within which price increases should be contained over the 1963-70 period as a whole. However, the Council said that a careful appraisal of the available information regarding the nature and patterns of the 1965 changes suggested little evidence that a broad and widely dispersed acceleration of price increases or accentuation of price pressures was then under way. However, it added that price and cost developments warranted much closer scrutiny and appraisal under conditions in which the economy was operating closer to its current potential.

Exports and Imports.—Canadian export performance improved significantly in 1960-65. The most dramatic and encouraging improvement was in exports of highly manufactured products. These increased in volume by an average of 26 p.c. a year over the 1960-65 period, compared with a rate of 7 p.c. in 1955-60 and an annual rate of only 2 p.c. in 1950-55. However, considering exports as a whole and in longer perspective, the Council judged Canadian export performance to be not entirely encouraging when

* Economic Council of Canada, *Second Annual Review: Towards Sustained and Balanced Growth*. Queen's Printer, Ottawa. December 1965.

compared with the record of other countries. The share of Canadian exports in relation to world trade has tended to decline from the very high level in the early postwar period. The Canadian share fell from 4.7 p.c. in 1955-59 to 4.3 p.c. in the first half of the 1960's, although there was a slight increase in the share in 1964. The Council said sustained and effective efforts are required in both export performance and import-competing performance in Canadian industry if potential output were to be attained and maintained. It called on business to give high priority to these requirements which go hand in hand with adequate development of specialization and productivity and sustained strong industrial growth. The Council also said that government should facilitate such success in the business community by adapting and developing policies deliberately aimed at strengthening Canada's trade performance, particularly in non-agricultural products.

The most important current problem is to achieve and maintain adequate productivity growth, the Council said. This is the key to economic growth and to rising living standards for Canadians. It is also an important factor in maintaining reasonable price and cost stability and a satisfactory international competitive posture. Even the goal of sustained high employment ultimately depends on adequate productivity growth, especially in relation to the United States. Without adequate productivity gains in Canada, imbalances and distortions would sooner or later appear to undermine employment.

Sources of Economic Growth

Successive economic studies, especially in the industrially advanced countries, have shown that total increases in the output of an economy can only be partly attributed to the increase in the quantity of a nation's economic resources (labour, capital, land and natural resources). These studies typically reveal a large 'residual' which must be accounted for by a second set of factors. These include the improvement in the quality of productive resources (such as levels of education and skill), together with the growth in the efficiency with which these resources are combined (including the application of new technology, better organization and production, shifts from less to more productive employment of labour and other resources, and increased specialization and scale of production). An important part of the Council's *Second Annual Review* constituted a preliminary exploration of the roles and relative importance of some of the complex forces affecting Canadian economic growth.

The Council approached its task partly by comparing differences in real per capita income between Canada and the United States. The current gap in output and in money income per person between Canada and the United States suggested that although average per capita incomes in Canada have increased considerably during this century, they have remained persistently and substantially below the U.S. averages. The analysis suggested that, in 1964, average Canadian income was at least 25 p.c. below the U.S. level. Since the over-all averages of current price levels in the two countries appeared to be fairly close together, the Council assumed that differences in the average levels of *money* income between the two countries could be taken as an approximate measure of the differences in the average levels of *real* income.

It was not possible to provide a comprehensive and precise measure of the relative importance of the many factors involved in the differences. However, the role and contribution of at least some of these factors were suggested. For example, Canada has recently had a much lower percentage of its population in the labour force, and an even lower percentage of employment in relation to total population. One reason for this is the relatively lower proportion of people of working age in Canada, especially as the result of the exceptionally high postwar birth rates in Canada. Another reason is the lower

participation rate among those of working population age, especially as a consequence of the very much lower participation of women in the Canadian labour force—only 32 p.c. in Canada in 1960 compared with over 43 p.c. in the United States.

Thus, although the difference in real income per capita between Canada and the United States is in excess of 25 p.c., the real income difference per person in the labour force or per employed person between the two countries is less than 20 p.c. In other words, although average per capita income (and hence the average standard of living) in Canada is more than one quarter below the United States, average productivity in Canada is less than one fifth lower. This is partly due to Canada's relatively greater use of capital facilities and land and natural resources. But these are not sufficient in themselves to assure the attainment of high productivity and high standards of living.

The main explanation for the differences in productivity between the two countries must lie in the differences in the quality of productive resources and the efficiency with which they are used. In this respect many possible comparisons between the two countries could be suggested—levels of education and skill; resource mobility, including the mobility of manpower; technological advances; organization of production; industrial scale and specialization; industrial initiative, enterprise and competition; the attitudes and energy of both workers and management; environmental and institutional influences such as geography, climate and government; population growth and density; and industrial and regional structure. Many of these factors were examined at length by the Council. However, one of the most important factors which the Council assessed—and one which is likely to become much more important over the next two decades—was the over-all differences between the two countries in the average educational levels of their labour forces. The crucial importance of education in economic growth is underlined by the fact that about 75 p.c. of all income in the economy accrues to labour, the remainder arising out of the ownership of property.

Education and Economic Growth

The basic role of education as a factor contributing to economic growth and rising living standards was stressed in the Council's *First Annual Review*, especially in the discussion of Canada's vital need for creating and maintaining an adequate supply of professional, technical, managerial and other highly skilled manpower as a basis for future growth. The *Second Annual Review* attempted a closer examination of education as a factor in growth. The Council recognized that its work in this difficult area was in the nature of a pioneering venture, but considered it useful to make some initial findings and conclusions:—

Average years of education per person in the male labour force rose rapidly and fairly steadily from 1910 to 1960 in the United States, with gains of 9 to 10 p.c. in each decade over that half century. The Canadian increases were somewhat more uneven and were also consistently below those in the United States. Consequently, it is estimated that although average years of schooling increased by less than 40 p.c. in Canada, the comparable increase in the United States was about 60 p.c. There has thus been a widening educational gap between the two countries. This gap appears to have widened particularly at the secondary school level in the inter-war years, and particularly at the university level in the postwar period. For example, in 1960 about 45 p.c. of the United States male labour force had four years of high school or more education, compared with only 24 p.c. in Canada in 1961.

The Council estimated that the Canada-U.S. differences in the average educational attainments of their respective labour forces account for approximately one third of the difference in productivity between the two countries. The Council's analysis also suggested a strong relationship between individual income levels and educational attainments. For example, in Canada the average income of those who have completed four to five years high school is more than one and a half times the average of those who have only elementary school education; and those who have university degrees have an average income which is more than two and a half times the average of those with only elementary school education, and more than twice the average of those who have only one to three years of high school.

A rough estimate of the 'profitability' of education can be made by calculating the extra income which on average is associated with a higher level of education, against the extra outlays and costs involved in obtaining such an education. On the basis of such calculations, it was estimated that returns on the 'human investment' in high school and university education in Canada are in the range of 15 to 20 p.c. a year. This is a somewhat higher rate of return than has been calculated for the United States.

The benefits from increased education, according to certain calculations and assumptions, are estimated to have accounted for a share in the general order of one quarter of the *increase* both in the average standard of living and in the productivity of Canadians from 1911 to 1961. Although this is a large contribution, it is apparently substantially lower than that indicated in comparable estimates for the United States.

Canada now faces a general shortage of manpower with higher educational attainments. The shortages extend from the high school level on up, and are most severe at the professional and university level. These deficiencies in the supply of skills constitute one of the major obstacles to be overcome in achieving a satisfactory rate of improvement in productivity and of economic growth in Canada.

The future benefits from increased efforts in education are very large, and the economic returns to the nation from increased investment in education are likely to exceed by a considerable margin those from most other types of expenditure. This economic gain is complementary to the contribution of education to the human, social and cultural development of individuals.

In the light of these findings, the Council recommended that the advancement of education at all levels be given a very high place in Canadian public policy, and that investment in education be accorded the highest rank in the scale of priorities. In particular, the Council urged that immediate attention be given to:—

- (1) The rapid and substantial expansion of post-secondary education in all parts of Canada. The aim should be to provide a ready opportunity for higher education to every qualified Canadian student so that financial obstacles will be eliminated as a barrier to higher education. A substantial increase in funds for research is a necessary feature of expanded and improved education at the higher levels.
- (2) The closing of the remaining gaps in school facilities and professional resources at the secondary school level so that such education is a real and practical possibility for all Canadian children.
- (3) The development and implementation of greatly expanded programs to upgrade and bring up to date the education and skill qualifications of the existing labour force, including professional workers and management. Continuing education and retraining must play an ever-increasing role in the future.
- (4) Social and other measures to reduce drop-outs in high school to achieve a much higher rate of high school completions.
- (5) Vigorous efforts through research, the use of new techniques, and upgrading the qualifications of teachers to improve the quality and methods of education.
- (6) Closer co-operation between business, labour and the educational system, along with improved counselling of students, regarding future manpower needs and the most effective ways of meeting these needs.

Regional Growth and Disparities

The problem of assuring an appropriate participation on the part of each region in the over-all process of national economic development has long been an elusive goal and a continuing concern of the people of Canada. The Council's analysis showed that over the past four decades there has been relatively little progress toward the achievement of a better balance in this respect. Despite various policies and programs, very wide disparities have continued to exist in average per capita income. Also, there have continued to be wide differences in the extent to which the human and material resources of each region have found opportunities for productive use. While national prosperity has always tended to have a favourable influence everywhere, rapid national growth has not by itself served to bring about any significant or lasting reduction in these large and stubborn differences.

Regional levels of personal income per capita (in current dollars) are shown for three selected groups of years in the following statement. Provinces are ranked in order of level of income in 1963 and the data are for three-year averages centred on the year shown.

<u>Province</u>	<u>1957</u>	<u>1947</u>	<u>1963</u>
	\$	\$	\$
Ontario.....	509	981	2,025
British Columbia (incl. the Yukon and Northwest Territories).....	535	980	1,966
Alberta.....	509	923	1,750
Saskatchewan.....	449	818	1,749
Manitoba.....	455	875	1,721
Quebec.....	378	709	1,521
Nova Scotia.....	299	676	1,302
New Brunswick.....	277	609	1,167
Prince Edward Island.....	248	477	1,115
Newfoundland.....	...	...	1,009
PROVINCIAL AVERAGE.....	407	783	1,532

The most striking features of the above comparisons are the substantial percentage difference in income levels between the highest and lowest province and the fact that the rankings of the provinces in terms of income levels have hardly changed over a period of almost 40 years.

The Council explored a number of underlying factors which help to explain why disparities exist in Canada and how they have changed over time. The following summary perspective was offered.

The Atlantic Provinces.—Although there are important distinctions among them, the four Atlantic Provinces clearly constitute the region with the lowest levels of per capita income in Canada and the area which has participated least adequately in the over-all national economic growth. In this sense the Atlantic Region is the 'under-developed region' of Canada, with a particularly unfavourable set of economic circumstances and characteristics.

First, the proportion of its population normally engaged in productive activity is lower than in other areas of the country. This fact alone would appear to account for roughly half of the gap in income per person between the region and the Canadian average. Contributing to this lower utilization of manpower resources are such factors as a relatively smaller proportion of total population in the working age group of 15-65 years, lower rates of participation in the labour force, higher-than-average unemployment and relatively severe seasonal unemployment. In addition, the general educational level of the labour force is below that of other regions and a larger proportion of the population live and work in rural areas where incomes are typically lower than in urban areas. Over the postwar period for which data are available, the rate of capital investment per capita has been well below the Canadian average. Regional public expenditure on growth-related services—including education, health, transport and resources development—has been consistently and substantially lower than in other Canadian regions. These conditions have also been reflected in high and sustained rates of migration of people from the area and in a rate of growth of employment slower than in the rest of Canada. These are the symptoms of a region in a low-level 'income-trap' and the breaking-out from that trap poses a formidable challenge to national policies for regionally balanced economic development.

Quebec.—Income levels per person in Quebec fall somewhat below the average for Canada. Manpower utilization is about 5 p.c. below the national level, mainly because of lower-than-average participation in the labour force and higher-than-average unemployment. Earnings per employed person also fall about 7 p.c. below the national level. It is not easy to isolate the basic contributing causes but lower levels of educational attainment in the labour force and a longer-run lag in investment in both the private and public sectors

of the regional economy undoubtedly have played a part. It is also true that, to a greater extent than in most of the other provinces, Quebec faces a difficult problem of securing sub-regional balance.

In terms of regional income growth, however, Quebec's performance has been well above the Canadian average. Indeed, since 1950, rising levels of income per person in this province have been a powerful force in reducing inter-regional income disparity in Canada. Employment has grown almost as rapidly as in Canada as a whole. Internal migration from rural to urban areas and occupations has also been an important factor in the over-all development of Quebec's economy, especially in the postwar period.

Manitoba and Saskatchewan.—These two Prairie Provinces have important distinguishing features. They are essentially similar, however, with respect to income levels and related economic characteristics, in which they rank somewhat above the average for Canada. Manpower utilization is at or above the national level because participation in the labour force is relatively high and the rate of unemployment is the lowest in the country. Seasonal unemployment associated with agriculture, however, is large. Indeed the importance of agriculture in both economies, but particularly in Saskatchewan, is an overriding influence which affects their economic status in relation to the other regions.

Earnings per employed person average close to the national level, although the relatively high concentration of employment in agriculture exerts a general downward pull. The shift out of this primary industry has involved a replacement of labour by capital on the farm and high rates of migration both to urban areas and to other provinces. Educational attainment in the labour force approximates the national average. Rates of investment per capita have been favourable and, in Saskatchewan particularly, the development of new mineral resources has diversified the productive capacity of the province. In these ways productivity and income per capita have been successfully maintained at or above the Canadian average. Nevertheless, total regional income and employment have increased relatively slowly because a highly mobile population has been attracted away by superior employment alternatives in the most rapidly expanding areas of the country. Consequently, a more rapid and sustained rate of regional growth and participation in national economic development will depend upon the provision of suitable employment opportunities involving high productivity and income within these regions.

Ontario, Alberta and British Columbia.—Although all three provinces have clearly distinguishable economic characteristics, in recent decades they have maintained a consistent standing at or near the top of the regional ranking of personal income per capita. Manpower utilization is higher than average in Ontario and Alberta, with favourable population age structures, high labour force participation rates and low unemployment. These factors are less favourable in British Columbia but their effects are offset by the exceptionally high rate of earnings per person employed—19 p.c. greater than the national average.

In all three provinces, educational attainment in the labour force and educational investment are advanced and rates of new investment have been well above average. In the range of factors the Council was not able to measure statistically—resource endowment, scale of enterprise and the stimulus of urban agglomeration, location and the use of advanced technology—these regions are relatively more favoured than most other provinces. With all these characteristics contributing to rapid growth in employment, population and total income, these regions have participated very strongly in national economic development. At the same time, to a greater extent than elsewhere, these regions have been confronted with problems associated with a sharp increase in the concentration of people and

economic activity—problems such as urban congestion, the optimum use of land, and the provision of services and facilities required to accommodate rapid urban growth. The solution to these problems clearly entails heavy capital investment and far-reaching, complex changes in the institutional framework to enable it to adapt to new needs.

The Council concluded that efforts to promote more regionally balanced growth should be aimed at achieving a more rapid increase in the incomes of the lagging regions by methods which do not retard the development of the faster-growing areas of the country. In this way the economic growth of the national economy would be improved for the benefit of all regions in Canada. The Council said that, in order to accomplish this result, it is essential that regional development policies be directed to two basic objectives—the increase of opportunities for high-productivity employment and the acceleration of programs which can make the maximum contribution to improvements in productivity generally in the region. The Council suggested the following guidelines for action:—

- (1) the avoidance, as far as possible, of subsidies merely to create temporary activity or to sustain indefinitely low-productivity industries and declining occupations;
- (2) encouragement of efficient agglomerations of activity—growth centres—within the different regions in order to achieve increasing economies of scale, larger markets and more useful pools of skills, and to avoid uneconomic scatter and dispersion;
- (3) the taking of decisions in respect of investments in social capital in accordance with an adequate consideration of the economic and social benefits to be obtained in relation to costs;
- (4) the recognition of the urgent need to make available additional financial resources to the governments of the lower-income regions and through the appropriate federal agencies in order to help break the vicious circle of low productivity, low incomes, low government revenues and low investments in growth-promoting services which are needed to improve the quality and effective utilization of the available human and material resources—in particular, education, training, research, health, transport facilities, resource and industrial development and the development of wider markets;
- (5) the necessity for close co-ordination in the formulation and implementation of consistent regional development policies and programs among all levels of government; this is particularly important in view of the wide range of programs and policies affecting regional development, both on the part of the provinces and through certain federal agencies such as the Atlantic Development Board, the Area Development Agency and the Agricultural Rehabilitation and Development Administration; and
- (6) the avoidance of self-defeating restrictive and divisive measures which interfere with the free flow of goods, capital, labour and enterprise between all the provinces; such measures must be avoided if we are to achieve simultaneously the twin goals of more satisfactory growth in every region and a rapid expansion of the national economy from which all would benefit.

The Council observed: "It is clear that the narrowing of inter-regional income disparities and the achievement of a more regionally balanced economic growth involve large, urgent, and especially challenging tasks. Many decades of experience have shown that these tasks cannot be accomplished by piecemeal expenditures, superficial expedients, unproductive works and mere transfers of income. The appropriate policies and programmes will need to be formulated within a long-run consistent framework and carried out with a continuing regard for the real and underlying problems involved."

In addition to the research and analysis of economic prospects and problems carried out by its own expert staff, the Council also draws upon the work of other public and private institutions and assigns consultants to conduct special studies. In addition, liaison is maintained with existing provincial economic and productivity councils and boards. Members and staff of the Council also have participated in a large number of meetings to discuss the Council's work with interested groups and with business, labour and university economists.

The Council also has commissioned specialists in their respective fields to undertake studies for conferences on various subjects. These include the National Conference on Labour-Management Relations held in Ottawa in November 1964, the Conference on Productivity Through New Technology in Toronto in May 1965, the Conference on Stabilization in London, Ont., in the late summer of 1965, and the Conference on International Trade and Canadian Agriculture in Banff, Alta., in January 1966. Papers from these conferences, as well as other staff and special studies for the Council, have been published and are available from the Queen's Printer, Ottawa. In addition, the Council has published a special report on incentives for industrial research and development, prepared by its Advisory Committee on Industrial Research and Technology.

Section 7.—The Atlantic Development Board

The persistence of the problems of slow growth and low income in the Atlantic region compared with the remainder of Canada has long been of concern to the Federal Government as well as to the governments of the Atlantic Provinces. Policies and programs introduced over the years in an effort to better economic conditions were not entirely successful for various reasons and recently it became imperative that new solutions should be sought and the traditional patterns of economic activity in this area modified. Among the changed approaches was the establishment by the Federal Government of the Atlantic Development Board in 1962 (SC 1962-63, c. 10, as amended by SC 1963, c. 5).

The Board incorporates three essential principles in regional economic development: joint and closely co-ordinated development of programs with the governments of the Atlantic Provinces; a concern with the basic structure of the regional economy and with problem causes rather than symptoms; and, where otherwise not available, federal financial assistance for development projects.

The Board is a special agency, distinct from the regular machinery of government. Its eleven members are appointed for fixed periods from all the Atlantic Provinces and from diverse fields of activity. It thus has the knowledge, the interest and the freedom to pioneer regional development. Headquarters of the Board are in Ottawa and the staff consists of 37 persons of whom about half are professional. The staff is organized into two functional Divisions—the Program Division is concerned with all aspects of Board projects including economic and engineering investigations and the carrying out of the projects themselves; the Planning Division is responsible for, in consultation with the Economic Council of Canada, the preparation of a co-ordinated plan for the promotion of the growth of the Atlantic region. For obvious reasons, the staff works very closely with officials of other departments and agencies. Each province has a regional committee which works with the Board staff on matters relating to that particular province. When projects are approved, the appropriate department or agency is requested to supervise the work and arrange administrative details on the Board's behalf. Ministers or officials from each of the four provincial governments are designated to act as liaison officers with the Board.

Very broadly, the Board's functions are to prepare a co-ordinated plan for the promotion of the economic growth of the Atlantic region and to recommend programs and projects to cope with or mitigate current problems. In carrying out these functions, the Board is acutely conscious of the interdependence of short-run and long-run policies and the need for consistency among them. Economic growth and development, particularly when based on increased industrial activity, require substantial investment in capital facilities for power, transportation, pure water for industrial purposes, and other services. These facilities, commonly referred to as 'infrastructure', are of basic importance and, for this reason, major emphasis has been placed on this type of investment. Since the construction of such facilities could not be financed by the Atlantic Provinces themselves at this time and on the necessary scale, the Federal Government, in July 1963, established a \$100,000,000 Atlantic Development Fund which, along with annual appropriations, will enable the Board to carry out its functions.

By Mar. 31, 1965, projects costing an estimated \$57,660,000 had been approved and expenditures of \$3,642,509 had been made against that amount, leaving outstanding commitments of \$54,017,491. The projects are as follows:—

<u>Project</u>	<u>Expenditure Approved</u>	<u>Funds Disbursed</u>
	<u>\$</u>	<u>\$</u>
POWER—		
Hydro power development, Mactaquac, N.B.....	20,000,000	459,335
Hydro power development, Bay D'Espoir, Nfld.....	20,000,000	1,188,645
Newfoundland Power Commission—conversion to 60 cycles.....	4,000,000	—
	44,000,000	1,647,980
TRANSPORTATION—		
Financial Assistance for Trunk Highway Systems—		
Newfoundland.....	3,000,000	—
New Brunswick.....	3,000,000	1,762,250
Nova Scotia.....	3,000,000	—
	9,000,000	1,762,250
OTHER BASIC SERVICES TO INDUSTRY—		
Water Supply and/or Sewage Systems, etc.—		
Canso, N.S.....	510,000	29,193
Cheticamp, N.S.....	140,000	375
Grand Etang, N.S.....	30,000	336
Lower East Pubnico, N.S.....	170,000	55
Shippegan, N.B.....	125,000	40,628
Bonavista, Nfld.....	250,000	—
Georgetown, P.E.I.....	135,000	74,922
Montague, P.E.I.....	90,000	22,744
Summerside, P.E.I.....	110,000	64,026
Irish moss pilot plant—P.E.I.....	100,000	—
	1,660,000	232,279
RESEARCH FACILITIES—		
Financial Assistance for New Research		
Laboratories and Equipment—		
Fredericton, N.B.....	1,250,000	—
Halifax, N.S.....	1,750,000	—
	3,000,000	—
TOTALS.....	57,660,000	3,642,509

In addition, the following technical and economic surveys and studies had been undertaken, financed by Parliamentary appropriations of the Department of the Secretary of State:—

<u>Survey or Study</u>	<u>1964</u>	<u>1965</u>
	<u>\$</u>	<u>\$</u>
Beneficiation research program on Wabana iron ore, Bell Island, Nfld....	—	300,000
Engineering investigations for deep water harbour, ore dock and ancillary facilities at Belldune Point, N.B. (cost shared with Department of Public Works).....	—	60,429
Study of inter-industry flow of goods and services in the Atlantic Provinces.....	—	53,555
Foundation investigations for tidal power development in Upper Bay of Fundy, N.B.....	66,027	33,973
Consultant services re power and natural resources.....	12,830	17,739
Engineering investigation of suitable water supply system for fishing plant at Shippegan, N.B.....	—	11,310
Economic study of grain trade via Atlantic ports.....	—	10,000
Study of demand and supply for hardwood in Atlantic Provinces.....	—	7,890
Study re industrial park site in Halifax-Dartmouth, N.S., area.....	—	7,500
Study of Newfoundland economy since Confederation.....	—	5,000
Economic data, reports and statistics.....	1,250	3,750
Study of Minto-Chipman, N.B., labour force.....	—	3,700
Study of transatlantic container shipping operation from ports of Halifax, N.S., and Saint John, N.B.....	—	3,240
Inspection services by Department of Public Works engineers.....	—	899
Engineering and economic feasibility studies re submarine cable between P.E.I. and mainland.....	10,000	—
Preliminary study of economic aspects of effects on Atlantic ports of winter navigation in St. Lawrence River and Gulf of St. Lawrence.....	10,000	—
Technical aspects of winter navigation in St. Lawrence River and the Gulf..	4,540	—
TOTALS.....	104,647	518,985

CHAPTER XXV.—BANKING, OTHER COMMERCIAL FINANCE AND INSURANCE

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

PART I.—BANKING AND OTHER COMMERCIAL FINANCE

Section 1.—Banking

Subsection 1.—The Bank of Canada*

The Bank of Canada is Canada's central bank. It was incorporated under the Bank of Canada Act in 1934 and commenced operations on Mar. 11, 1935. The Act of Parliament which established the central bank charged it with the responsibility for regulating "credit and currency in the best interests of the economic life of the nation", and conferred on it certain specific powers for discharging this responsibility. Through the exercise of these powers, the Bank of Canada determines broadly the combined total of the basic forms of Canadian money held by the community—currency outside banks plus deposit balances in chartered bank accounts.

By virtue of the provisions of the Bank of Canada Act, which enable the central bank to increase or decrease the total amount of cash reserves available to the chartered banks as a group, the Bank of Canada is able to determine broadly the over-all level of the total assets and deposit liabilities of the group, and hence of the combined total of currency and bank deposits. The Bank Act requires that each chartered bank maintain a minimum amount of cash reserves in the form of deposits at the Bank of Canada and holdings of Bank of Canada notes. This minimum requirement is 8 p.c. of the bank's total Canadian

* Revised by the Research Department of the Bank of Canada.

dollar deposit liabilities on a monthly average basis. The ability of the chartered banks as a group to expand their total assets and deposit liabilities therefore depends on the level of total cash reserves. An increase in cash reserves will encourage the banks to expand their total assets (which consist chiefly of loans and marketable securities) with a concomitant increase in deposit liabilities; a decrease in cash reserves will bring about a decline in their total assets and deposit liabilities as they seek to restore their cash reserve ratios.

The chief method by which the Bank of Canada can affect the level of cash reserves of the chartered banks and through them the total of chartered bank deposits, is by purchases and sales of government securities. Payment by the central bank for the securities it purchases in the market adds to the cash reserves of the chartered banks as a group and puts them in a position to expand their assets and deposit liabilities. Conversely, payment to the central bank for securities it sells causes a reduction in reserves of the chartered banks and makes it necessary for them to reduce their assets and deposit liabilities.

The influence that the Bank of Canada has on credit conditions and hence on economic behaviour stems from its ability to determine broadly the level of total holdings of currency and chartered bank deposits. The trend of total holdings of these forms of money can have an influence on liquidity generally, including effects on interest rates and bond prices and the availability of credit, and on expectations regarding future financial and economic trends, all of which have some effect on decisions to spend or to save. However, many factors other than changes in the money supply also have important influences on financial and economic developments, such as: the state of economic conditions and prospects outside Canada; the competitive strength of Canadian business enterprises both at home and abroad; the character of the investment decisions and price and wage policies in domestic industries; the skills and degree of mobility of labour; and the nature of public policies at all levels of government with regard to such matters as expenditure, taxation, subsidies and the regulation of industry. In forming its judgments, the Bank of Canada is bound by criteria laid down by Act of Parliament in the preamble to the Bank of Canada Act of 1934. Its operations must be based, not on any simple mechanical formula, but rather on continuous observation and appraisal of the constantly changing state of the economy as reflected in the complex pattern of economic and financial developments.

Although the Bank of Canada has the power to determine the combined total of currency and chartered bank deposits, it has no means of determining how much of this total is held in the form of currency and how much in the form of chartered bank deposits. That depends on the wishes of the public, since deposits can be converted freely into notes and coin and back again. Nor does the Bank have any direct control over the growth of other forms of money or of close substitutes for money as a store of wealth in liquid form, of which there are many varieties in Canada—mainly deposit balances in savings institutions other than chartered banks and short-term securities issued by governments and corporations.

The cash reserve system in Canada, which is similar to that in a number of other countries, while placing the central bank in a position where it can determine within broad limits the total amount of chartered bank assets and deposits, leaves the allocation of bank credit and other forms of credit to the private sector of the economy. Each chartered bank can attempt to gain as large a share as possible of the total cash reserves by competing for deposits. Each bank determines how its assets will be distributed, for example, between various kinds of securities and loans to various types of borrowers. The Bank of Canada has no power to direct banks or other lenders to make funds available to certain groups or in certain regions on the same terms or on different terms than to other groups or in other regions. The influence of the central bank—based in essence on its power to expand or contract chartered bank cash reserves through its market purchases or sales of securities—is both indirect and impersonal and is brought to bear on financial conditions generally through the chartered banks and the numerous inter-connected channels of the capital market.

The powers of the Bank are set forth in the Bank of Canada Act, 1934 (RSC 1952, c. 13), revisions in which were made in 1936, 1938 and 1954. Some of these powers are outlined in the 1965 Year Book at pp. 1031-1032.

The Bank is under the management of a Board of Directors composed of a Governor, a Deputy Governor and twelve Directors. The Governor and Deputy Governor are appointed for terms of seven years each by the Directors, with the approval of the Governor General in Council. The Directors are appointed by the Minister of Finance, with the approval of the Governor General in Council, for terms of three years each. The Deputy Minister of Finance is a member of the Board but does not have the right to vote. There is an Executive Committee of the Board composed of the Governor, the Deputy Governor, one Director and the Deputy Minister of Finance (who is without a vote) which has the same powers as the Board except that its decisions must be submitted to the Board at its next meeting. In addition to the Deputy Governor who is a member of the Board, there may be one or more Deputy Governors appointed by the Board of Directors to perform such duties as are assigned by the Board.

The head office of the Bank is at Ottawa. It has agencies at Halifax, Saint John, Montreal, Ottawa, Toronto, Winnipeg, Regina, Calgary and Vancouver and is represented in St. John's and Charlottetown.

1.—Assets and Liabilities of the Bank of Canada, as at Dec. 31, 1960-64

Item	1960	1961	1962	1963	1964
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Assets					
Foreign exchange.....	54.5	44.8	47.4	42.4	97.6
Bankers' acceptances.....	—	—	3.3	—	—
Investments—					
Treasury bills of Canada.....	404.4	312.2	455.2	465.6	478.7
Other securities issued or guaranteed by Canada maturing within 2 years.....	353.4	513.9	446.6	688.0	349.2
Other securities issued or guaranteed by Canada not maturing within 2 years.....	1,931.9	1,999.6	1,980.8	1,881.7	2,236.5
Bonds and debentures issued by Industrial Development Bank.....	64.4	88.0	127.1	150.6	176.5
Other securities.....	24.4	25.0	25.7	21.5	13.4
Industrial Development Bank capital stock.....	25.0	27.0	31.0	33.0	36.0
Bank premises.....	11.5	10.6	10.7	11.8	13.2
All other assets.....	175.0	221.9	103.3	150.4	240.8
Totals, Assets.....	3,044.4	3,242.9	3,231.1	3,444.9	3,641.9
Liabilities					
Capital paid up.....	5.0	5.0	5.0	5.0	5.0
Reserve Fund.....	25.0	25.0	25.0	25.0	25.0
Notes in Circulation—					
Held by chartered banks.....	329.8	346.6	416.8	418.4	355.1
All other.....	1,731.9	1,800.2	1,817.0	1,886.2	2,025.5
Deposits—					
Government of Canada.....	35.7	41.4	42.9	49.4	68.9
Chartered banks.....	662.6	749.4	745.6	811.4	882.1
Other.....	33.3	33.4	38.1	38.9	35.6
Foreign currency liabilities.....	68.6	59.0	61.1	52.8	44.9
All other liabilities.....	152.5	182.8	79.6	157.8	199.8
Totals, Liabilities.....	3,044.4	3,242.9	3,231.1	3,444.9	3,641.9

The Industrial Development Bank.—The Industrial Development Bank, a subsidiary of the Bank of Canada, was incorporated by Act of Parliament during 1944 and its banking operations commenced on Nov. 1, 1944. Its functions are described in the preamble to the Act as follows:—

"To promote the economic welfare of Canada by increasing the effectiveness of monetary action through ensuring the availability of credit to industrial enterprises which may reasonably be expected to prove successful if a high level of national income and employment is maintained, by supplementing the activities of other lenders and by providing capital assistance to industry with particular consideration to the financing problems of small enterprises."

The President of the Industrial Development Bank is the Governor of the Bank of Canada and the Directors are the Directors of the Bank of Canada and the Deputy Minister of Trade and Commerce. The authorized capital of the Bank is \$50,000,000 and it may also raise funds by the issue of bonds and debentures provided that its total direct liabilities and contingent liabilities in the form of guarantees and underwriting agreements do not exceed five times the aggregate of the Bank's paid-up capital and Reserve Fund.

The Bank may extend financial assistance to industrial enterprises in Canada which, by definition in the Act, include any industry, trade or other business undertaking of any kind. With respect to such enterprises the Bank is empowered to lend money or guarantee loans and where an enterprise is a corporation the Bank may also enter into underwriting agreements with regard to any issue of stock, bonds or debentures; acquire stock, bonds or debentures from the issuing corporation or any person with whom the Bank has entered into an underwriting agreement; and acquire certificates issued by a trustee to finance the purchase of transportation equipment. The total amount of commitments of the Bank, in the form of loans, guarantees, etc., in excess of \$200,000 each, may not exceed \$200,000,000.

The Bank may accept any form of collateral security against its advances, including realty and chattel mortgages which constitute the usual kind of security taken. The Bank is intended to supplement the activities of other lending agencies, not to compete with them, and the Act of Incorporation provides that it should extend credit only when, in the Bank's opinion, credit or other financial resources would not otherwise be available on reasonable terms and conditions. Its lending takes the form of fixed-term capital loans rather than current operating loans. The Bank is specifically prohibited from engaging in the business of deposit banking. It has branch offices in the following cities: St. John's, Halifax, Saint John, Moncton, Rimouski, Quebec, Trois-Rivières, Montreal, Ottawa, Toronto, Hamilton, Waterloo, London, Windsor, Sudbury, Port Arthur, Winnipeg, Regina, Saskatoon, Calgary, Edmonton, Kelowna, Vancouver, Victoria and Prince George.

2.—Assets and Liabilities of the Industrial Development Bank, as at Sept. 30, 1960-64

Item	1960	1961	1962	1963	1964
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Assets—					
Loans outstanding ¹	103.1	123.3	164.9	200.9	224.2
Other assets.....	3.7	1.7	2.2	3.7	5.2
Totals, Assets.....	106.8	125.0	167.1	204.6	229.4
Liabilities—					
Capital and reserves.....	41.8	44.2	49.0	53.3	57.0
Bonds and debentures outstanding.....	63.6	78.9	115.3	147.6	168.1
Other liabilities.....	1.4	1.9	2.8	3.7	4.3
Totals, Liabilities.....	106.8	125.0	167.1	204.6	229.4
Loan Transactions—					
Disbursements.....	29.7	47.5	74.3	74.0	69.5
Repayments.....	23.4	27.1	32.6	38.2	46.2
Loans outstanding plus undistributed authorizations.....	119.8	154.2	203.6	232.6	264.2
	No.	No.	No.	No.	No.
Customers on books.....	1,966	2,768	4,083	5,105	6,028

¹ Includes investments; the change in loans outstanding does not equal the difference between disbursements and repayments because of year-end accounting adjustments.

Subsection 2.—Currency

Note Circulation.—The development by which bank notes became the chief circulating medium in Canada prior to 1935 is described in the 1938 Year Book, pp. 900-905. Those features of the development which then became permanent are outlined in the 1941 Year Book, pp. 809-810.

When the Bank of Canada commenced operations in 1935 it assumed liability for Dominion notes outstanding. These were replaced in public circulation and partly replaced in cash reserves by the Bank's legal tender notes in denominations of \$1, \$2, \$5, \$10, \$20, \$50 and \$100. Deposits of chartered banks at the Bank of Canada completed the replacement of the old Dominion notes of \$1,000 to \$50,000 denomination that had previously been used as cash reserves. The chartered banks were required under the Bank Act of 1934 to reduce gradually the issue of their own bank notes during the years 1935-45 to an amount not in excess of 25 p.c. of their paid-up capital on Mar. 11, 1935. Bank of Canada notes thus replaced chartered bank notes as the issue of the latter was reduced. Further restrictions introduced by the 1944 revision of the Bank Act cancelled the right of chartered banks to issue or re-issue notes after Jan. 1, 1945, and in January 1950 the chartered banks' liability for such of their notes issued for circulation in Canada as then remained outstanding was transferred to the Bank of Canada in return for payment of a like sum to the Bank of Canada.

3.—Bank of Canada Note Liabilities, as at Dec. 31, 1960-64

Denomination	1960	1961	1962	1963	1964
	\$'000	\$'000	\$'000	\$'000	\$'000
Bank of Canada Notes—					
\$1.....	81,733	86,114	91,426	94,853	97,742
\$2.....	57,622	60,640	63,837	66,670	68,768
\$5.....	149,545	156,501	162,643	167,743	172,752
\$10.....	519,559	533,041	548,442	558,688	574,516
\$20.....	676,549	719,713	766,974	811,119	841,002
\$25.....	46	46	46	46	46
\$50.....	147,596	152,106	155,938	158,277	163,419
\$100.....	396,328	407,307	413,460	415,563	429,093
\$500.....	41	38	37	37	34
\$1,000.....	19,547	18,198	17,951	18,603	20,181
Totals.....	2,048,567	2,133,704	2,220,755	2,291,600	2,367,553
Note issues in process of retirement ¹	13,177	13,116	13,067	13,044	13,006
Totals, Bank of Canada Note Liabilities...	2,061,743	2,146,820	2,233,822	2,304,644	2,380,559
Held by—					
Chartered banks.....	329,841	346,630	416,845	418,405	355,086
Others.....	1,731,902	1,800,190	1,816,977	1,886,239	2,025,473

¹ Includes, in 1964, chartered banks' notes \$8,253, Dominion of Canada notes \$4,637, provincial notes \$28 and defunct banks' notes \$88; these amounts have changed little in recent years.

4.—Note Circulation in the Hands of the Public, as at Dec. 31, 1955-64

As at Dec. 31—	Bank of Canada Notes ¹	Per Capita	As at Dec. 31—	Bank of Canada Notes ¹	Per Capita
	\$	\$		\$	\$
1955.....	1,449,045,166	92.31	1960.....	1,731,902,386	96.92
1956.....	1,497,765,781	93.14	1961.....	1,800,190,122	98.70
1957.....	1,555,115,143	93.63	1962.....	1,816,977,132	97.84
1958.....	1,659,870,299	97.18	1963.....	1,886,238,792	99.82
1959.....	1,704,822,198	97.51	1964.....	2,025,473,300	105.30

¹ Total issue less notes held by chartered banks.

Coinage.*—Under the Currency, Mint and Exchange Fund Act (RSC 1952, c. 315), gold coins may be issued in denominations of twenty dollars, ten dollars and five dollars (nine-tenths fine or millesimal fineness, 900). Subsidiary coins include: silver coins in denominations of one dollar, 50 cents, 25 cents, 10 cents (eight-tenths fine or millesimal fineness, 800); pure nickel five-cent coins; and bronze (copper, tin and zinc) one-cent coins. Provision is made for the temporary alteration of composition in event of a shortage of prescribed metals. A tender of payment of money in coins is a legal tender in the case of gold coins issued under the authority of Sect. 4 of the Currency, Mint and Exchange Fund Act for the payment of any amount; in the case of silver coins for the payment of an amount up to \$10; nickel coins for payment up to \$5; and bronze coins up to 25 cents.

5.—Canadian Coin in Circulation, as at Dec. 31, 1955-64

NOTE.—The figures shown are of net issues of coin. Figures from 1901 are given in the corresponding table of previous Year Books beginning with the 1927-28 edition.

As at Dec. 31—	Silver	Nickel	Tombac ¹	Steel	Bronze	Total	Per Capita
	\$	\$	\$	\$	\$	\$	\$
1955.....	95,574,457	8,076,800	555,912	3,457,712	12,956,807	120,621,688	7.68
1956.....	100,922,477	8,545,507	552,868	3,456,782	13,742,282	127,219,916	7.91
1957.....	107,116,450	8,910,869	550,743	3,455,886	14,745,243	134,779,191	8.11
1958.....	115,120,076	9,289,481	549,630	3,455,062	15,322,156	143,736,405	8.42
1959.....	123,344,059	9,865,012	549,237	3,454,209	16,150,222	153,362,739	8.77
1960.....	136,710,958	11,599,263	549,090	3,452,876	16,895,953	169,208,140	9.47
1961.....	146,902,352	14,110,198	549,021	3,451,708	18,311,853	183,325,132	10.05
1962.....	162,928,707	16,433,088	549,009	3,450,676	20,595,543	203,957,023	10.98
1963.....	180,492,972	18,627,687	548,999	3,449,476	23,383,788	226,502,922	11.99
1964.....	206,551,965	22,522,116	548,996	3,448,547	28,009,356	261,080,980	13.57

¹ Tombac, a copper-zinc alloy, was used to conserve nickel for war purposes; no coins of this metal have been issued since 1944.

*The Royal Canadian Mint.**—The Mint at Ottawa was established as a branch of the Royal Mint under the (Imperial) Coinage Act 1870 and opened on Jan. 2, 1908. In 1931 (RSC 1952, c. 240) it was constituted a branch of the Canadian Department of

* Revised by the Master of the Royal Canadian Mint, Ottawa.

Finance and has since operated as the Royal Canadian Mint. Gold refining is the principal activity of the Mint. Fine gold produced from the rough bullion shipments received from the mines is purchased by the Mint and later delivered to the Bank of Canada for account of the Minister of Finance in bars of approximately 400 oz.t. each or, for those mines authorized to sell gold in the open market, the bullion is shipped according to instructions from the mines. The fine silver extracted from the rough gold is generally used for coinage purposes.

6.—Receipts of Gold Bullion at the Royal Canadian Mint and Bullion and Coinage Issued, 1955-64

NOTE.—Figures from 1926 are given in the corresponding table of previous Year Books beginning with the 1946 edition.

Year	Gold Received	Gold Bullion Issued	Silver Coin Issued	Nickel Coin Issued	Bronze Coin Issued
	oz. t.	oz. t.	\$	\$	\$
1955.....	3,047,637	3,952,764	4,269,157	267,801	566,863
1956.....	3,801,789	3,774,599	5,389,464	469,993	786,855
1957.....	3,896,084	3,776,711	6,236,429	366,493	1,004,221
1958.....	3,958,459	4,088,706	8,044,753	379,616	578,274
1959.....	3,908,640	3,836,680	8,273,563	576,680	829,116
1960.....	4,024,626	4,014,771	13,432,251	1,735,707	748,101
1961.....	3,800,137	3,812,054	10,299,581	2,512,369	1,417,544
1962.....	3,488,974	3,520,406	16,114,240	2,324,212	2,284,925
1963.....	3,457,092	3,467,554	17,688,668	2,196,217	2,790,679
1964.....	3,188,868	3,173,573	26,153,154	3,895,746	4,626,963

Dollar Currency and Bank Deposits.—Bank of Canada statistics concerning currency and chartered bank deposits are given in Table 7.

7.—Canadian Dollar Currency and Chartered Bank Deposits, as at Dec. 31, 1955-64

(Millions of dollars)

As at Dec. 31—	Currency Outside Banks			Chartered Bank Deposits				Total Currency and Chartered Bank Deposits ¹		
	Notes	Coin	Total	Personal Savings Deposits ²	Government of Canada Deposits	Other Deposits ^{1,2}	Total ¹	Total Including Government Deposits	Held by General Public	
									Including Personal Savings Deposits	Excluding Personal Savings Deposits ²
1955.....	1,449	101	1,550	5,633	517	3,697	9,847	11,397	10,880	5,248
1956.....	1,498	108	1,605	6,007	246	3,580	9,833	11,438	11,192	5,185
1957.....	1,555	112	1,667	6,108 ²	423	3,725 ²	10,256	11,923	11,500	5,392 ²
1958.....	1,660	121	1,781	6,844	319	4,303	11,466	13,247	12,927	6,084
1959.....	1,705	128	1,832	6,900	404	4,057	11,360	13,193	12,789	5,890
1960.....	1,732	144	1,876	7,215	510	4,313	12,037	13,914	13,404	6,189
1961.....	1,800	158	1,959	7,618	588	4,998	13,205	15,163	14,575	6,957
1962.....	1,817	177	1,994	7,932	564	5,193	13,689	15,683	15,119	7,187
1963.....	1,886	198	2,084	8,443	914	5,623	14,980	17,064	16,150	7,707
1964.....	2,025	229	2,254	8,935	996	6,164	15,795	18,049	17,353	8,418

¹ Less total float, i.e., cheques and other items in transit.

² The deposit balances of religious, educational and welfare institutions and personal accounts used mainly for business purposes were reclassified from "personal savings deposits" to "other notice deposits" as at Sept. 30, 1957 in the returns of the banks to the Department of Finance; from that date the figures are thus not comparable with those for previous years. The amount of deposits reclassified was approximately \$140,000,000.

Subsection 3.—The Chartered Banks*

The Canadian commercial banking system consists of eight privately owned banks, chartered by Parliament and operating under the provisions of the Bank Act.† Of these eight, five are nation-wide institutions; two operate mainly in the Province of Quebec and in other French-speaking areas and one, affiliated with a New York bank, has branches in six large cities. At the end of 1964, these banks together operated 5,782 banking offices of which 5,575 were in Canada and 207 abroad. Thus, the chief distinguishing feature of the Canadian banking system is the relatively small number of large banks having an extensive network of branches, operating under a single legislative jurisdiction (the Federal Government) and under one detailed and comprehensive statute (the Bank Act).

Since the first banks were established during the first quarter of the nineteenth century, the commercial banking system has developed in response to the changing needs of the Canadian economy, an evolution which is still in rapid progress. Canadian economic development has been characterized by two main features—successive but by no means continuous periods of rapid geographical expansion of settlement, and a continued dependence on export markets as new natural resources (agricultural land, forests and minerals) were exploited. Thus, Canadian banking has continually had to migrate to new areas and to find appropriate methods of financing new industries and new products; and it has from the beginning possessed a strongly ‘international’ character‡ with much emphasis on the financing of foreign trade, on foreign exchange operations, and on correspondent relations with foreign banks. At the same time, as regional isolation has gradually broken down and the economy has been integrated, banks originating in local areas have become part of a nation-wide banking system, in part by process of amalgamation particularly marked in the first twenty-five years of the present century.

Bank Legislation

From the first, banks in what is now Canada sought to operate under Acts of incorporation (charters) passed by the legislatures of the colonies in which they operated. As new banks were incorporated and older ones obtained charter renewals, there developed in the bank charters themselves a quite extensive and fairly uniform code of banking law. At Confederation, responsibility for banking and currency was given to the Dominion Government and in 1871 the first general Bank Act was passed. This legislation is subject to review and revision every ten years, a feature that has helped to keep the banking system adapted to the needs of a changing economy. The decennial revision was due in 1964, but the Bank Act was extended in order to provide time to consider recommendations made by the Royal Commission on Banking and Finance established in 1961; the Commission's report was published in 1964.

The Bank Act has become a most detailed and comprehensive piece of legislation which provides for the internal regulation and organization of the banks, for the auditing of their accounts, and for the ways in which their capital stock may be issued and transferred, their dividends paid, and their affairs settled in case of amalgamation, winding-up or insolvency. In addition, it states what cash reserves the banks must keep, what reports they must make to the Government and to the Bank of Canada about their affairs and sets forth a variety of rules governing the conduct of business with the public. The Bank Act also specifies the maximum rate of interest that may be charged on bank loans. (Since the 1944 Bank Act revision this ceiling has been 6 p.c., replacing the 7-p.c. ceiling that had prevailed since 1871.) The banks derive their corporate existence from the Act, which

* More detail is included in an article appearing in the 1961 Year Book, pp. 1115-1120, prepared by J. Douglas Gibson, General Manager of The Bank of Nova Scotia. The early history of currency and banking in Canada is given in the 1938 Year Book, pp. 900-905. A list of the banks at Confederation appears in the 1940 Year Book, p. 897, and bank absorptions since 1867 are given in the 1941 edition, pp. 812-813. A table in the 1937 Year Book, pp. 894-895, shows the insolvencies since Confederation; the last insolvency occurred in 1923.

† The Senate, on July 28, 1964, approved the granting of charters to two additional banks—the Bank of Western Canada and the Laurentide Bank.

‡ The larger Canadian banks have long maintained offices in London and New York. In addition, some Canadian banks for more than half a century have been providing an important part of the commercial banking facilities in the Caribbean area (see Table 10, p. 1065).

states that "each bank . . . is a body politic and corporate and this Act is its charter"; successive Bank Acts have empowered the banks to do business for a period of ten years, until the next revision of the Act.

Banking Operations

Operating under the Bank Act, the chartered banks at their branches accept deposits from the public, make loans covering a wide range of commercial, industrial, agricultural and consumer activities, deal in foreign exchange, receive and pay out Bank of Canada notes and coin, provide safekeeping facilities, and perform a variety of other services coming within the scope of the general business of banking. The head office of a Canadian bank does not transact ordinary day-to-day business with the public; it performs general administration and policy-making functions, manages the bank's investment portfolio, does its centralized accounting work, and maintains specialized departments devoted to inspection of branch operations, the development of branch office methods, the acquisition of new business, premises, staff, arrangements with foreign banks, advertising, etc.

Under its branch system, Canadian banking is able to provide standard banking facilities throughout the country. Every branch, even the smallest, can provide all banking services and each has behind it the resources of a large bank, which means that lending requirements can be met just as well by a branch in a small town or a suburban branch as in the main branches of a large city. Branch banking also provides an excellent training for Canadian bank officers through the system of promotion and transfer from branch to branch. Almost without exception, the chief executives of the Canadian banks have grown up in the service and have been trained in this way.

The branch system has proved to be most flexible and Canadian banking has been able to keep pace with settlement and economic development during its periods of most rapid growth. Particularly during the past quarter-century, with a rapidly expanding economy, sharply rising population and growing urbanization, new branches have opened at a very rapid rate. Banking offices in Canada, which numbered about 3,300 at the end of 1939 and 3,100 at the end of 1945, grew by over 2,400 in the next nineteen years. As this growth suggests, Canadian banks have taken full advantage of the recent expansive atmosphere to extend the volume and variety of their services to industry and to individuals. Strongly competing for customers, they offer a wide variety of new deposit arrangements, including new savings programs, new forms of chequing accounts and greatly broadened lending facilities.

By the end of the War, the banks had experienced more than fifteen years of restricted demand for commercial credit; at the end of 1945 security holdings accounted for about 55 p.c. of the banks' total assets, compared with a little over 40 p.c. just before the War and only about 15 p.c. in 1930. In the early postwar years, the economic control apparatus created for the War was gradually dismantled. The expansion of the private sector of the economy and the contraction of the government sector were quickly reflected in a shift of bank assets from government securities to commercial loans. Between the end of 1945 and the end of 1950, bank loans in Canadian currency increased from about 21 p.c. to 31 p.c. of total assets. There was, at the same time, a rapid growth in total assets, as the monetary authorities leaned to the side of relatively easy money conditions to stimulate the economy and to ward off the widely anticipated postwar recession. In the five years ended Dec. 31, 1950, total assets expanded from about \$7,300,000,000 to \$9,400,000,000, almost all of the increase being in Canadian assets.

It was not until the outbreak of the Korean War in June 1950 that the fear of inflation, arising from the heavy demands on Canadian resources, led to the adoption of restraining measures. Since then, the banks have experienced substantial changes in their credit-granting capacity, as the country's official monetary policy was adapted to meet changes in business conditions. Alternating periods of ease and restraint have been marked by periods of rapidly rising bank assets followed by levelling-off phases.

The Korean boom of 1950-51 was followed, after only a short pause, by the investment boom of 1953-54. Recession in 1954-55 was accompanied by an easy monetary policy, during which the banks built up their liquid assets in the form of government bonds. Then a second and greater investment boom got under way in late 1955, which carried the Canadian economy and the banking system into another period when resources were strained to the limit. At this time, new measures of restraint were introduced into the Canadian banking system by the monetary authorities, including an agreed secondary reserve ratio of 7 p.c. in addition to the cash reserves of 8 p.c. already prescribed in the Bank Act revision of 1954. A further agreement with the Bank of Canada was aimed at restraining term loans for capital purposes* and in 1956 bank loans to instalment finance companies were also put under some restraint. The boom of 1955-57 was followed by a mild recession in 1957-58, moderate recovery in 1958-59, slackening in 1960 and recovery again in 1961-65. Over the period 1955-65, the banks have not regained the liquidity that characterized earlier postwar recessions, and there has been a growing need to husband resources carefully for the various and growing alternative outlets which developed as the result of economic growth, and of the efforts of both the Federal Government and the banks themselves to provide new uses for bank credit.

One of the first government measures was the Farm Improvement Loans Act of 1944, under which the chartered banks were authorized to make loans to farmers for the purchase of equipment and livestock and for making various improvements to their farm buildings and facilities (see p. 462). These loans are often for sizable amounts (an average of about \$1,500) and the terms have been gradually extended to a maximum sum of \$15,000 outstanding to any one borrower with a maximum period of ten years (four years for implements). The banks are guaranteed against loss up to 10 p.c. of their loans made during the three-year "lending periods", up to a maximum total of loans by all banks. This total is \$700,000,000 for the lending period to end in mid-1968. By the end of 1964 the total amount of loans made under this Act was approximately \$1,527,000,000.

The 1954 revision of the Bank Act introduced a major change in banking practice by enabling the banks to acquire mortgages issued under the National Housing Act. About 35 p.c. of all NHA mortgage loans in the years 1954-59 were made by the chartered banks, but at the end of 1959 the NHA interest rate was raised to 6½ p.c. and the banks withdrew from this field of lending. Notwithstanding this, by Dec. 31, 1964 they held some \$851,000,000 in NHA mortgages, representing about 4 p.c. of total assets. Another change affecting housing in the 1954 revision enabled the banks to make home improvement loans under a guarantee system rather similar to the one developed for farm improvement loans. By the end of 1964, home improvement loans amounting to more than \$348,000,000 had been approved and the banks had about \$74,000,000 of such loans on their books.

In November 1960, the Small Businesses Loans Act was passed guaranteeing, under terms to the banks similar to those of the Farm Improvement Loans Act, certain types of bank loan to small businesses for the purposes of making capital improvements to premises and equipment. This provides for loans that do not fall within the usual scope of bank lending to small business, by reason of the term nature of the loan, together with the lack of collateral resources of the borrower. Of course, chartered banks make loans to small businesses for a great variety of purposes, including many of a medium-term character; indeed, the working capital loan to the small-size or medium-size industry or commercial enterprise is the traditional stock-in-trade business of the chartered banks.

In April 1961, the charter of the Export Finance Corporation of Canada Limited, which had been incorporated by special Act of Parliament in June 1959 for private interests, was acquired by the chartered banks. The principal purpose of the Corporation is to assist in the medium-term (one to five years) financing of exports which have been insured by the Export Credit Insurance Corporation, a Crown company.

* Such loans were almost entirely a postwar innovation in Canadian lending practice, and had increased markedly during the easy-money period of 1954-55. Since 1956, term lending has been generally confined within narrower limits, although it is still practised when conditions permit.

Still another area of lending which has expanded greatly in recent years is that of consumer credit. Although the banks have always made some personal loans, they have recently moved aggressively into the field of lending to the general public for the purchase of automobiles, consumer durables and debt consolidation. Following the 1954 Bank Act revision, and partly as a result of the change then made which enabled the banks to take chattel mortgage security, some banks have developed extensive consumer credit divisions. Personal loans made by the banks, other than those secured by stocks and bonds and home improvement loans, mounted from \$420,000,000 at the end of 1957 to \$2,064,000,000 outstanding at June 30, 1965.

Outside of Canada, the Canadian banks have continued to expand their branch systems in the Caribbean area (although the two Canadian banks operating in Cuba found it necessary to withdraw), in South America, and in Europe. In recent years the growth of an international money market, following the economic recovery in Europe and the restoration of confidence in the stability of the Western economies and their currencies, has led to large movements of Western capital from one centre to another. The Canadian banks have participated extensively in this international money market, mainly through New York and London where most of them maintain large offices.

The postwar growth in bank assets has been accompanied by a substantial increase in total earnings. Earnings per share of capital employed did not increase to the same extent, however, as the banks found it necessary to raise new funds from time to time after 1950 in order to maintain an appropriate relationship between their shareholders' capital and the rapidly rising level of risk assets. The banks have been among the largest issuers of new share capital to Canadians in the past quarter-century.

Branches of Chartered Banks.—Although there are fewer chartered banks now than at the beginning of the century, there has been a great increase in the number of branch banking offices. As a result of amalgamations, the number of banks declined from 34 in 1901 to 10 in 1931, and remained at that figure until the incorporation of a new bank—The Mercantile Bank of Canada—in 1953 brought the total to 11. Since then the amalgamation in 1955 of The Bank of Toronto and The Dominion Bank as The Toronto-Dominion Bank, the amalgamation of Barclays Bank (Canada) with the Imperial Bank of Canada in 1956 and the amalgamation of the Canadian Bank of Commerce and the Imperial Bank of Canada as the Canadian Imperial Bank of Commerce on June 1, 1961 have reduced this number to eight.* The number of branches of chartered banks in each province periodically from 1868 to 1964 is given in Table 8.

* See footnote †, p. 1061.

8.—Branches of Chartered Banks, by Province, as at Dec. 31 for Certain Years 1868-1964

NOTE.—Figures for 1920 and subsequent years include sub-agencies in Canada receiving deposits for the banks employing them; there were 768 such sub-agencies at Dec. 31, 1964.

Province or Territory	1868	1902	1905	1920	1926	1930	1940	1950	1960	1962	1963	1964
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland.....	—	—	—	—	—	—	—	39	71	81	88	90
Prince Edward Island..	—	9	10	41	28	28	25	23	27	27	26	26
Nova Scotia.....	5	89	101	169	134	138	134	144	173	178	180	183
New Brunswick.....	4	35	49	121	101	102	97	100	113	118	121	123
Quebec.....	12	137	196	1,150	1,072	1,183	1,083	1,164	1,427	1,489	1,515	1,539
Ontario.....	100	349	549	1,536	1,326	1,409	1,208	1,257	1,785	1,916	1,967	2,022
Manitoba.....	—	52	95	349	224	239	162	165	234	248	255	261
Saskatchewan.....	—	30	87	591	427	447	233	238	296	299	303	308
Alberta.....	—	—	—	424	269	304	172	246	394	417	431	445
British Columbia.....	2	46	55	242	186	229	192	294	514	545	546	563
Yukon and N.W.T.....	—	—	3	3	3	4	5	9	17	14	15	15
Canada.....	123	747	1,145	4,676	3,770	4,083	3,311	3,679	5,051	5,332	5,447	5,575

9.—Branches of Individual Canadian Chartered Banks, by Province, as at Dec. 31, 1964

NOTE.—This table includes 768 sub-agencies in Canada for receiving deposits.

Bank	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.
	No.	No.	No.	No.	No.	No.
Bank of Montreal.....	23	2	26	20	176	344
The Bank of Nova Scotia.....	38	8	51	40	60	276
Banque Canadienne Nationale.....	—	—	—	—	588	19
Banque Provinciale du Canada.....	—	2	—	18	321	24
Canadian Imperial Bank of Commerce.....	9	8	28	16	167	595
The Mercantile Bank of Canada.....	—	—	—	—	1	1
The Royal Bank of Canada.....	20	5	75	24	162	394
The Toronto-Dominion Bank.....	—	1	3	5	64	369
Totals.....	90	26	183	123	1,539	2,022
	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Total
	No.	No.	No.	No.	No.	No.
Bank of Montreal.....	57	60	103	127	4	942
The Bank of Nova Scotia.....	23	33	58	70	—	657
Banque Canadienne Nationale.....	4	—	—	—	—	611
Banque Provinciale du Canada.....	—	—	—	—	—	365
Canadian Imperial Bank of Commerce.....	64	89	136	184	8	1,304
The Mercantile Bank of Canada.....	1	—	1	1	—	5
The Royal Bank of Canada.....	73	87	90	114	3	1,047
The Toronto-Dominion Bank.....	39	39	57	67	—	644
Totals.....	261	308	445	563	15	5,575

10.—Branches of Individual Canadian Chartered Banks Outside Canada, as at Dec. 31, 1964

NOTE.—This table does not include sub-agencies operating outside Canada, of which there were 38 in 1964.

Bank and Location	Number	Bank and Location	Number	Bank and Location	Number
Bank of Montreal—		Canadian Imperial Bank of Commerce—		The Royal Bank—concl.	
Britain.....	2	Britain.....	2	Haiti.....	1
United States.....	3	British West Indies.....	19	Dominican Republic....	9
France.....	2	United States.....	5	France.....	1
Germany.....	5			The Toronto-Dominion Bank—	
The Bank of		The Royal Bank of		Britain.....	2
Nova Scotia—		Canada—		United States.....	1
Britain.....	4	Britain.....	2	Banque Canadienne	
British West Indies.....	32	British West Indies.....	34	Nationale—	
Dominican Republic....	3	United States.....	1	France.....	1
United States.....	1	Puerto Rico.....	5		
Puerto Rico.....	3	Central and South			
Trinidad.....	4	America.....	27	Total.....	169

Financial Statistics of the Chartered Banks.—The classification of chartered bank assets and liabilities was revised by the Bank of Canada Act, 1954, so that the statistical series given in Tables 11-15 begins with that year. Assets and liabilities are given in less detail for 1954-61 in the 1965 Year Book, p. 1043; month-end data are available from Dec. 31, 1954 to date in the Bank of Canada *Statistical Summary*.

11.—Statement of Chartered Bank Assets and Liabilities, as at Dec. 31, 1962-64

Assets and Liabilities	1962	1963	1964
	\$'000	\$'000	\$'000
Assets—			
Gold and coin in Canada.....	38,311	38,148	41,361
Gold and coin outside Canada.....	1,117	1,043	1,121
Notes of and deposits with Bank of Canada.....	1,162,415	1,229,815	1,237,192
Government and bank notes other than Canadian.....	46,537	50,814	55,222
Deposits with other banks in Canadian currency.....	8,879	9,325	7,294
Deposits with other banks in currencies other than Canadian.....	1,204,006	1,110,206	1,597,118
Cheques and other items in transit (net).....	867,398	1,068,794	803,285
Government of Canada treasury bills.....	1,126,584	1,282,250	1,256,864
Other Government of Canada direct and guaranteed securities maturing within two years, not exceeding market value.....	753,552	1,335,170	1,125,879
Government of Canada direct and guaranteed securities maturing after two years, not exceeding market value.....	1,487,313	1,325,190	1,336,486
Canadian provincial government direct and guaranteed securities, not exceeding market value.....	407,355	385,558	372,191
Canadian municipal and school corporation securities, not exceeding market value.....	249,943	286,917	307,347
Other Canadian securities, not exceeding market value.....	457,196	461,808	486,772
Securities other than Canadian, not exceeding market value.....	705,238	538,214	586,750
Mortgages and hypothecs insured under the National Housing Act 1954, less provision for estimated loss.....	921,112	890,658	850,977
Call and short loans in Canada to brokers and investment dealers, secured	481,998	397,486	403,828
Call and short loans outside Canada to brokers and investment dealers, secured.....	683,678	1,013,047	1,017,254
Loans to Canadian provincial governments.....	28,937	47,697	30,188
Loans to Canadian municipalities and school corporations, less provision for estimated loss.....	243,739	301,023	362,589
Other current loans in Canada, less provision for estimated loss.....	7,237,913	7,837,351	8,866,087
Other current loans outside Canada, less provision for estimated loss.....	1,365,984	1,565,668	2,010,859
Non-current loans, less provision for estimated loss.....	1,424	1,349	1,441
Bank premises at cost, less amounts written off.....	276,763	296,868	315,454
Shares of and loans to corporations controlled by the bank.....	53,675	55,216	70,163
Customers' liability under acceptances, guarantees and letters of credit as per contra.....	456,706	559,144	722,393
Other assets.....	4,935	6,945	5,817
Totals, Assets.....	20,272,708	22,093,704	23,871,932
Liabilities—			
Deposits by Government of Canada in Canadian currency.....	563,616	913,694	696,315
Deposits by Canadian provincial governments in Canadian currency.....	155,293	182,597	201,554
Deposits by other banks in Canadian currency.....	171,172	186,573	182,898
Deposits by other banks in currencies other than Canadian.....	693,759	816,179	930,627
Personal savings deposits payable after notice, in Canada, in Canadian currency.....	7,932,383	8,442,777	8,934,586
Other deposits payable after notice, in Canadian currency.....	997,463	1,191,137	1,505,377
Other deposits payable on demand, in Canadian currency.....	4,878,869	5,182,311	5,176,120
Other deposits in currencies other than Canadian.....	3,264,074	3,397,832	4,280,801
Acceptances, guarantees and letters of credit.....	456,706	559,144	722,393
Other liabilities.....	62,450	69,888	66,472
Capital paid up.....	276,957	281,930	281,958
Rest account.....	812,070	862,502	881,300
Undivided profits at latest fiscal year-end.....	7,896	7,140	11,531
Totals, Liabilities.....	20,272,708	22,093,704	23,871,932

12.—Canadian Cash Reserves, 1955-64

NOTE.—Bank of Canada deposits are averages of the juridical days in the month shown; Bank of Canada notes and Canadian dollar deposits are averages of the four consecutive Wednesdays ending with the second last Wednesday in the previous month.

(Millions of dollars)

Year	Cash Reserves			Canadian Dollar Deposit Liabilities	Average Cash Reserve Ratio
	Bank of Canada Deposits	Bank of Canada Notes	Total		
1955.....	541	293	834	9,915	8.4
1956.....	548	325	873	10,527	8.3
1957.....	535	335	870	10,601	8.2
1958.....	607	336	943	11,452	8.2
1959.....	648	351	999	12,187	8.2
1960.....	625	360	985	12,052	8.2
1961.....	673	367	1,040	12,804	8.1
1962.....	748	376	1,124	13,812	8.1
1963.....	775	394	1,169	14,400	8.1
1964.....	857	407	1,263	15,598	8.1

13.—Classification of Chartered Bank Deposit Liabilities Payable to the Public in Canada in Canadian Currency, as at Sept. 30, 1963 and 1964

Deposit Accounts of the Public of—	1963			1964		
	Personal Savings Deposit Accounts	Other Deposit Accounts of the Public	Total Deposit Accounts of the Public	Personal Savings Deposit Accounts	Other Deposit Accounts of the Public	Total Deposit Accounts of the Public
	No.	No.	No.	No.	No.	No.
Less than \$100.....	6,468,580	1,438,893	7,907,473	6,699,456	1,501,189	8,200,645
\$100 or over but less than \$1,000....	3,436,216	1,005,848	4,442,064	3,565,143	1,059,246	4,624,389
\$1,000 or over but less than \$10,000..	1,807,534	397,425	2,204,959	1,890,040	412,985	2,303,025
\$10,000 or over but less than \$100,000	98,820	67,647	166,467	108,073	73,097	181,170
\$100,000 or over.....	1,088	6,744	7,832	1,162	7,372	8,534
Totals, Deposits.....	11,812,238	2,916,557	14,728,795	12,263,874	3,053,889	15,317,763

14.—Classification of Chartered Bank Loans in Canadian Currency, as at Dec. 31, 1962-64

Class of Loan	1962	1963	1964
	\$'000,000	\$'000,000	\$'000,000
General Loans—			
Personal.....	1,624.4	1,895.6	2,323.1
To individuals, fully secured by marketable bonds and stocks.....	372.0	392.3	458.5
Home improvement loans.....	69.8	71.5	72.0
To individuals, not elsewhere classified.....	1,182.6	1,431.8	1,792.6
Farmers—			
Farm Improvement Loans Act.....	212.6	242.6	274.8
Other farm loans.....	343.4	392.7	433.0
Industry.....	1,470.6	1,511.4	1,764.4
Chemical and rubber products.....	59.8	58.1	68.4
Electrical apparatus and supplies.....	79.9	76.0	84.7
Foods, beverages and tobacco.....	276.5	297.0	290.4
Forest products.....	195.5	191.7	299.5
Furniture.....	31.0	33.5	36.9
Iron and steel products.....	220.9	225.0	251.1
Mining and mine products.....	105.6	122.5	127.6
Petroleum and products.....	111.3	104.7	126.4
Textiles, leather and clothing.....	195.3	192.2	222.9
Transportation equipment.....	85.3	89.2	119.8
Other products.....	111.5	121.4	136.6

**14.—Classification of Chartered Bank Loans in Canadian Currency, as at
Dec. 31, 1962-64—concluded**

Class of Loan	1962	1963	1964
	\$'000,000	\$'000,000	\$'000,000
General Loans—concluded			
Merchandisers.....	987.4	1,060.2	1,139.0
Construction contractors.....	364.4	396.6	455.9
Public utilities, transportation and communications.....	224.9	220.1	248.4
Other business.....	991.1	1,165.5	1,321.5
Religious, educational, health and welfare institutions.....	226.5	234.1	262.1
Totals, General Loans.....	6,445.3	7,118.9	8,222.3
Other Loans—			
Provincial governments.....	28.9	47.7	30.2
Municipal governments and school districts.....	243.7	301.0	362.6
Stockbrokers.....	65.2	53.6	61.3
Investment dealers.....	124.1	91.0	89.4
Loans to finance the purchase of Canada Savings Bonds.....	199.6	198.3	198.4
Grain dealers and exporters.....	310.8	219.5	148.0
Instalment and other finance companies.....	283.7	302.0	298.8
Totals, Other Loans.....	1,256.0	1,213.1	1,188.7
Grand Totals, Loans in Canadian Currency.....	7,701.3	8,332.0	9,411.0

**15.—Chartered Bank Earnings, Expenses and Additions to Shareholders' Equity,
Fiscal Years Ended in 1962-64**

NOTE.—The financial years of five banks end on Oct. 31, two on Nov. 30 and one on Sept. 30.

Item	1962	1963	1964
	\$'000,000	\$'000,000	\$'000,000
Current Operating Earnings—			
Interest and discount on loans.....	611.5	663.1	745.1
Interest, dividends and trading profits on securities ¹	211.3	232.0	252.2
Exchange, commission, service charges and other current operating earnings.....	154.0	169.9	187.4
Totals, Current Operating Earnings.....	976.8	1,065.0	1,184.7
Current Operating Expenses—²			
Interest on deposits.....	355.3	398.5	456.4
Remuneration to employees.....	260.9	276.1	294.2
Contributions to pension funds.....	13.6	13.8	13.3
Provision for depreciation of bank premises.....	22.4	23.7	24.9
Other current operating expenses ³	135.4	146.4	159.8
Totals, Current Operating Expenses².....	787.6	858.5	948.6
Net current operating earnings².....	189.2	206.5	236.1
Capital profits and non-recurring items ⁴	2.0	1.7	2.8
Less provision for losses and addition to inner reserves, net ⁵	24.7	24.3	58.7
Less provision for income taxes ⁶	84.7	88.5	92.2
Leaving for dividends and shareholders' equity.....	81.8	95.4	88.0
Dividends to shareholders.....	60.3	63.3	64.9
Additions to shareholders' equity.....	21.5	32.1	23.1
ADDITIONS TO SHAREHOLDERS' EQUITY			
Undivided Profits—			
From operating earnings, net after transfers to rest account.....	-1.0	-0.8	4.4
Rest Account—			
From operating earnings and undivided profits.....	19.6	20.3	18.7
From retransfers from inner reserves.....	3.0	12.5	—
From premium on new shares.....	3.5	17.5	0.2
Capital Paid Up—			
From issue of new shares.....	2.1	5.0	0.1
NET ADDITIONS TO SHAREHOLDERS' EQUITY.....	27.2	54.5	23.3

¹ Realized profits and losses on disposal of securities are included in operating earnings. ² Before provision for income taxes, losses, and transfers to inner reserves. ³ Includes taxes other than income taxes. ⁴ Profits and losses on sale of fixed assets and adjustments relating to prior years. ⁵ After amounts retransferred to rest account. ⁶ Includes income taxes on taxable portion of additions to and amounts retransferred from inner reserves, and foreign income taxes.

Cheque Payments.—A monthly record of the value of cheques charged to customer accounts at all chartered bank offices in the major clearing-house centres of Canada is available from 1924. During the past twenty years the value of cheques cleared in these centres has increased steadily at the average rate of 9.4 p.c. a year. Clearing centres in British Columbia showed the highest rate of increase during that period, followed closely by Quebec and Ontario.

The value of cheques cashed in the 35 major clearing centres in 1964 reached a record high of \$417,000,000, an increase of 15.8 p.c. over 1963. All of the reporting centres recorded increases. St. Catharines, Ont., reported the largest advance at 29.4 p.c. Peterborough, Ont., increased by 22.1 p.c., Victoria, B.C., by 21.9 p.c. and London, Ont., by 21.1 p.c. Toronto, which accounted for 37.2 p.c. of the total value of cheques cleared, rose by 18.6 p.c. and Montreal by 17.8 p.c.

16.—Cheques Cashed at 35 Clearing-House Centres, 1963 and 1964

NOTE.—Figures for earlier years will be found in the corresponding table of previous Year Books.

Clearing-House Centre	1963	1964	Clearing-House Centre	1963	1964
	\$'000	\$'000		\$'000	\$'000
Atlantic Provinces	7,405,754	8,301,199	Ontario—concluded		
Halifax.....	3,557,104	3,852,641	Sudbury.....	812,918	838,983
Moncton.....	819,463	887,873	Toronto.....	130,999,231	155,418,798
Saint John.....	1,508,102	1,706,178	Windsor.....	2,939,769	3,531,255
St. John's.....	1,521,085	1,854,507	Prairie Provinces	56,777,845	61,044,062
Quebec	108,813,868	126,978,357	Brandon.....	289,517	328,967
Montreal.....	98,803,788	116,379,368	Calgary.....	12,291,349	14,070,305
Quebec.....	9,092,942	9,564,067	Edmonton.....	9,311,561	10,541,712
Sherbrooke.....	917,138	1,034,922	Lethbridge.....	616,173	643,859
Ontario	162,200,060	191,639,223	Medicine Hat.....	292,610	309,689
Brantford.....	855,872	921,946	Moose Jaw.....	424,312	441,559
Chatham.....	756,246	868,547	Prince Albert.....	257,849	275,287
Cornwall.....	519,027	609,142	Regina.....	5,727,082	5,926,437
Fort William.....	544,409	583,174	Saskatoon.....	1,361,303	1,551,490
Hamilton.....	7,429,937	8,570,766	Winnipeg.....	26,206,089	26,954,757
Kingston.....	709,932	809,636	British Columbia	25,069,589	29,372,078
Kitchener.....	1,796,074	2,006,150	New Westminster.....	21,679,909	25,239,274
London.....	4,759,177	5,763,605	Vancouver.....		
Ottawa.....	7,472,755	8,601,107	Victoria.....	3,389,680	4,132,804
Peterborough.....	696,514	850,500			
St. Catharines.....	1,162,836	1,504,844			
Sarnia.....	745,363	760,770	Totals	360,267,116	417,334,919

Subsection 4.—Government and Other Banking Institutions

There are three distinct types of savings banks in Canada in addition to the savings departments of the chartered banks and of trust and loan companies: (1) the Post Office Savings Bank, in which deposits are a direct obligation of the Government of Canada; (2) Provincial Government savings banking institutions in Ontario and Alberta, where the depositor becomes a direct creditor of the province; and (3) two important savings banks in the Province of Quebec—the Montreal City and District Savings Bank and La Banque d'Économie de Québec—established under federal legislation and reporting monthly to the federal Department of Finance. In addition, co-operative credit unions encourage savings among low-income classes and extend small loans to their members.

Post Office Savings Bank.—The Post Office Savings Bank was established under the Post Office Act of 1867 (SC 1867, c. 10) to "enlarge the facilities now available for the deposit of small savings, to make the Post Office available for that purpose, and to give the direct security of the nation to every depositor for repayment of all money deposited by him together with the interest due thereon". Branches of the Government of Canada's

Savings Bank under the Department of Finance were gradually amalgamated with this Bank over a period of 50 years and the amalgamation was completed in March 1929. Summary financial statistics for the years ended Mar. 31, 1962-65 follow.

<i>Item</i>	<i>1962</i>	<i>1963</i>	<i>1964</i>	<i>1965</i>
	\$	\$	\$	\$
Deposits and interest.....	6,466,358	5,714,720	5,422,181	4,862,529
Deposits.....	5,790,429	5,072,613	4,813,401	4,283,950
Interest on deposits.....	675,929	642,107	608,779	578,579
Withdrawals.....	7,614,025	7,199,360	6,697,740	6,212,491
Balance on deposit.....	27,365,119	25,880,479	24,604,919	23,254,957

Provincial Government Savings Banks.—Institutions for the deposit of savings are operated by the Provincial Governments of Ontario and Alberta.

Ontario.—The establishment of the Province of Ontario Savings Office was authorized by the Ontario Legislature at the 1921 Session and the first branches were opened in March 1922. Interest at the rate of 3 p.c. per annum, compounded half-yearly, is paid on accounts, and deposits are repayable on demand. Total deposits at Mar. 31, 1965 were \$83,300,000 and the number of depositors was approximately 93,000; 21 branches were in operation throughout the province.

Alberta.—Savings deposits are accepted at 61 Province of Alberta Treasury Branches throughout the province. The total of these deposits at Mar. 31, 1965 was \$68,508,573, of which \$50,615,736 was payable on demand bearing interest at 3½ p.c. per annum, \$6,727,706 was in term savings for terms of from one to five years bearing interest at 4 p.c. to 4½ p.c. per annum depending on the term, and \$11,165,131 was in term deposit receipts for terms of from 30 days to 365 days bearing interest at rates comparable to those paid on the open market.

Quebec Savings Banks.—The Montreal City and District Savings Bank, founded in 1846 and now operating under a charter of 1871 had, at Mar. 31, 1965, a paid-up capital and reserve of \$12,000,000, savings deposits of \$335,318,236 and total liabilities of \$349,611,161. Total assets amounted to \$349,611,161, including \$116,383,877 of federal, provincial, municipal and other securities.

La Banque d'Économie de Québec, founded in 1848 (as La Caisse d'Économie de Notre-Dame de Québec) under the auspices of the St. Vincent de Paul Society, incorporated by Act of the Canadian Legislature in 1855 and given a federal charter by SC 1871, c. 7, had, at Mar. 31, 1965, savings deposits of \$55,548,107 and a paid-up capital and reserve of \$3,500,000. Total liabilities amounted to \$60,979,852 and total assets to a like amount.

Credit Unions.—Credit unions are savings and loan associations operated by people with a common bond. The bond of association may be in a parish, club, lodge or labour union, that of employment in a plant, industry or department, or that of a residence in a rural or well-defined urban community. During the ten-year period 1955-64, the number of credit unions chartered increased by 19 p.c., the number of members in reporting organizations by 97 p.c., and assets of reporting organizations by 241 p.c. Membership reached 3,422,658 in 1964, Quebec reporting over half of that membership and 56 p.c. of the total assets. In the Maritime Provinces, Quebec and Saskatchewan the credit unions are predominantly rural but the non-rural credit unions accounted for 62 p.c. of the total in Manitoba, 63 p.c. in Alberta, 75 p.c. in British Columbia, 87 p.c. in Newfoundland and 91 p.c. in Ontario.

Assets amounted to \$2,200,000,000 in 1964, an increase of 16 p.c. over 1963. Savings, which include shares and deposits, increased by 14 p.c. to reach \$2,000,000,000; the average saving per credit union member was \$579.

There were 28 central credit unions in 1964; these central credit unions act as credit unions for the credit unions, mainly by accepting deposits from them and making loans to them, and they facilitate the flow of funds to credit unions that cannot meet the demand for local loans. Some of them admit co-operative associations to membership. The centrals had assets of \$303,355,000 in 1964, an increase of 13 p.c. over 1963; they made loans amounting to \$103,420,000 to member credit unions and co-operatives. The Canadian Co-operative Credit Society serves as a central credit union for provincial centrals and co-operatives all across Canada. In 1964, membership in this national organization included four provincial centrals, four commercial co-operatives, the Co-operative Life Insurance Company and the Co-operative Fire and Casualty Insurance Company. This central had assets of \$2,072,000 in 1964, made loans to members amounting to \$2,605,000 and had member deposits of \$1,500,000.

17.—Credit Unions in Canada, 1955-64

Year	Credit Unions Chartered	Credit Unions Reporting	Members ¹	Assets ¹
	No.	No.	No.	\$'000
1955.....	4,100	3,899	1,731,328	652,554
1956.....	4,258	3,977	1,870,277	761,256
1957.....	4,349	4,044	2,059,835	852,219
1958.....	4,485	4,156	2,187,494	1,009,363
1959.....	4,570	4,202	2,360,047	1,157,995
1960.....	4,608	4,345	2,553,951	1,314,290
1961.....	4,682	4,348	2,740,261	1,506,167
1962.....	4,760	4,323	2,879,179	1,673,835
1963.....	4,809	4,336	3,123,735	1,920,341
1964.....	4,894	4,362	3,422,658	2,227,203

¹ Reporting organizations only.

18.—Summary Statistics of Credit Unions, by Province, 1964

Province	Credit Unions Chartered	Credit Unions Reporting	Members	Assets	Shares	Deposits	Loans to Members	Total Loans since Inception
	No.	No.	No.	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	63	37	3,119	1,000	487	20	509	6,340
Prince Edward Island....	54	34	10,057	2,000	1,887	80	1,395	16,000
Nova Scotia.....	187	180	79,347	26,000	20,414	1,241	21,727	132,591
New Brunswick.....	165	164	92,291	24,000	21,200	340	10,528	109,290
Quebec.....	1,588	1,446	1,852,261	1,229,000	165,116	985,070	345,328	2,794,548
Ontario.....	1,643	1,346	700,000	448,000	279,383	83,688	250,204	1,697,409
Manitoba.....	261	254	132,451	89,000	63,922	11,563	58,819	349,312
Saskatchewan.....	296	293	212,280	209,000	150,774	29,234	102,845	565,350
Alberta.....	323	310	108,710	56,000	44,580	3,231	34,801	239,019
British Columbia.....	314	298	232,142	143,000	104,922	13,645	87,966	667,617
Totals.....	4,894	4,362	3,422,658	2,227,000	852,685	1,128,112	914,122	6,577,476

Section 2.—Other Commercial Finance

Subsection 1.—Trust and Mortgage Loan Companies*

Trust and mortgage loan companies are registered with either the federal or provincial governments. They operate under the Loan and Trust Companies Acts (RSC 1952, c. 170 as amended by SC 1953 c. 5, SC 1958 c. 35, SC 1961 c. 51, and SC 1964-65 c. 40; RSC 1952 c. 272 as amended by SC 1953 c. 10, SC 1958 c. 42, SC 1961 c. 55 and SC 1964-65 c. 40, respectively) or under corresponding provincial legislation.

* Prepared by the Research Department of the Bank of Canada in co-operation with the Superintendent of Insurance for Canada.

The first mortgage loan companies were established in Ontario in the 1840's as co-operative associations to provide mortgage finance for their members. These associations evolved under legislation which was amended to give them permanent corporate status as mortgage lending institutions. They obtained their funds principally by selling medium- and long-term debentures to the public but also had the power to open deposit accounts. Trust companies were first incorporated in Ontario in the 1880's. Although the trust company legislation prevented them from borrowing funds, they had the power to accept funds in guaranteed trust accounts and invest them in specified types of assets. This feature of trust company legislation is now general throughout Canada. Although it does set up a trust rather than creditor relationship between trust companies and the holders of their certificates and deposits, the trust companies operate as financial intermediaries in the same way as mortgage loan companies, chartered or savings banks and other financial institutions. A more important special characteristic of trust companies is that they are the only corporations in Canada with power to act as trustees for property interests and to conduct other fiduciary business. In this capacity they act as executors, trustees and administrators under wills or by appointment, as trustees under marriage or other settlements, as agents in the management of estates of the living, as guardians of minor or incapable persons, as financial agents for municipalities and companies, as transfer agents and registrars for stock and bond issues, as trustees for bond issues and, where so appointed, as authorized trustees in bankruptcies.

Mortgage loan and trust companies were established and grew rapidly under provincial legislation in the late nineteenth and early twentieth centuries. Some companies were chartered by special Acts of Parliament but it was not until 1914 that federal legislation was passed and the Federal Government began to regulate trust and loan companies registered under its Acts. There are now eight federal trust companies and 11 federal loan companies. The Superintendent of Insurance examines these companies and also, by arrangement with the provinces, trust and loan companies incorporated in Nova Scotia, and trust companies incorporated in New Brunswick and Manitoba. Companies must be licensed by each province in which they wish to operate.

Although there are many differences among the various federal and provincial Acts, the broad lines of the legislation are common. In their intermediary business the companies have the powers mentioned above to borrow or, in the case of trust companies, accept funds in guaranteed accounts subject to maximum permitted ratios of these funds to shareholders' equity. The funds may be invested in specified assets which include first mortgages on real property, government securities and the bonds and equity of corporations having established earnings records. The companies may grant loans on the security of such bonds and stocks but may not make unsecured commercial and personal loans. Trust and loan companies are not required to hold specified cash reserves, as are the chartered and savings banks, but there are broadly defined "liquid asset" requirements in a number of the Acts. The investment powers of federal companies were broadened in 1965, when the maximum permitted value of conventional mortgage loans was raised from 66 $\frac{2}{3}$ p.c. to 75 p.c. of the appraised value of the property, the limit on common stock holdings was raised from 15 p.c. to 25 p.c. of total assets and the quality tests for common stocks eligible for investment were relaxed.

The trust and mortgage loan companies have been substantial members of the Canadian financial system since their early years. In the 1920's they held about one half of the private mortgage business in Canada but during the 1930's and World War II their growth rate fell off sharply because of the impact of the depression of the 1930's and World War II on the mortgage business. In the years since the War the re-emergence of strong demands for mortgage financing and the willingness of many trust and loan companies to compete aggressively for funds have led to sustained rapid expansion. These developments may be traced in the annual statistics published by the Superintendent of Insurance and provincial authorities, and in the quarterly balance sheet data compiled by the Dominion Bureau of Statistics.

According to the DBS figures, the mortgage loan companies had assets of \$1,908,000,000 at the end of 1964 compared with \$1,544,000,000 a year earlier. Their holdings of mortgages amounted to \$1,469,000,000, or 77 p.c. of total assets. Specialization in mortgage investment has kept this ratio fairly steady over the years. At the end of the year, these companies had borrowed \$1,256,000,000 or 66 p.c. of their total funds by the sale of debentures and \$320,000,000 from deposit accounts, about one half of the deposits being in chequable savings accounts.

At the end of 1964, the "intermediary" assets of trust companies in the DBS survey were \$2,789,000,000 compared with \$2,321,000,000 a year earlier. In addition, the companies had a total of \$9,966,000,000, at book values, under administration in estate, trust and agency accounts on Dec. 31, 1963.* Trust companies have not specialized in mortgage financing to the same extent as loan companies but in recent years they have been putting a high proportion of their funds into these investments so that mortgages were 51 p.c. of their assets at the end of 1964 compared with 39 p.c. five years earlier. The trust companies had \$1,478,000,000 of term certificates outstanding and \$1,050,000,000 in deposit accounts in December 1964. As in the case of mortgage loan companies, about one half of the deposits were in chequable accounts. There is considerable variety among the trust companies and a few have developed a substantial short-term business, raising funds by issuing certificates for terms as short as thirty days and also operating as lenders in the money market. Nevertheless, it remains true that the main preoccupation of the trust companies in their intermediary role, as of the mortgage loan companies, is the channelling of savings into mortgages and other long-term investments.

More complete information may be found in the reports of the Superintendent of Insurance on Loan and Trust Companies, the reports of provincial supervisory authorities and in the Report of the Royal Commission on Banking and Finance as well as submissions and evidence put before the Commission. Quarterly balance sheet statements are published by the Dominion Bureau of Statistics and the Bank of Canada. The annual figures given in Tables 19-22 are from the Department of Insurance report; data for 1964 were not available at the time of printing.

* Department of Insurance figure; latest available.

**19.—Operations of Provincial and Federal Loan and Trust Companies, as at
Dec. 31, 1962 and 1963**

Item	1962			1963		
	Provincial Companies	Federal Companies	Total	Provincial Companies	Federal Companies	Total
	\$	\$	\$	\$	\$	\$
Loan Companies—						
Assets (book values).....	256,439,854	669,516,472	925,956,326	337,274,251	775,562,275	1,112,836,526
Liabilities to the public.....	192,289,290	602,964,243	795,253,533	263,281,428	698,750,185	960,031,613
Capital paid up.....	25,226,797	23,048,264	48,275,061	32,146,664	28,388,618	60,535,282
Reserve and contingency funds....	31,980,414	42,616,400	74,596,814	35,809,232	48,619,146	84,428,378
Surplus.....	6,943,353	887,565	7,830,918	6,036,927	1,803,426	7,840,353
Total liabilities to shareholders....	64,150,564	66,552,229	130,702,793	73,992,823	78,812,090	152,804,913
Gross profits realized during year ¹ .	5,564,661	9,644,393	15,209,054	6,620,715	10,325,026	16,945,741
Trust Companies—						
Assets (book values)—						
Company funds.....	140,787,304	72,443,013	213,230,317	162,291,058	81,472,495	243,763,553
Guaranteed funds.....	1,061,205,513	632,659,981	1,693,865,494	1,305,530,825	798,722,300	2,104,253,125
Totals, Assets.....	1,201,992,817	705,102,994	1,907,095,811	1,467,821,883	880,194,795	2,348,016,678
Estates, trust, and agency funds...	6,818,580,561	2,196,628,230	9,014,208,791	7,594,738,180	2,371,284,565	9,966,022,745
Capital paid up.....	36,917,543	24,706,315	61,623,858	43,271,752	26,400,185	69,671,937
Reserve and contingency funds....	71,507,051	42,135,004	113,642,055	87,594,226	48,223,038	135,817,264
Surplus.....	8,821,534	2,115,300	10,936,834	8,254,638	2,263,615	10,518,253
Gross profits realized during year ¹ .	14,221,156	9,039,634	23,260,790	15,305,697	11,551,735	26,857,432

¹ Profits before income taxes.

20.—Assets and Liabilities of Loan Companies, 1959-63

Item	CHARTERED BY GOVERNMENT OF CANADA ¹				
	1959	1960	1961	1962	1963
	\$	\$	\$	\$	\$
Assets					
Real estate ²	9,568,209	9,995,987	11,315,716	13,507,438	15,616,341
Mortgage loans and agreements of sale.....	312,248,782	360,338,064	425,789,259	506,731,590	597,175,335
Collateral loans.....	1,654,320	295,504	1,434,676	6,901,806	2,627,559
Bonds and debentures.....	50,748,166	57,399,876	79,903,391	85,566,281	98,406,751
Stocks.....	18,437,649	17,841,824	29,313,096	30,317,279	37,728,286
Cash.....	11,596,706	8,782,834	9,881,139	12,301,988	11,588,055
Totals, Assets³.....	408,793,088	460,640,322	566,511,576	669,516,472	775,562,275
Liabilities					
Liabilities to Shareholders—					
Capital paid up.....	18,675,472	18,727,117	20,410,770	23,048,264	28,389,518
Reserves.....	25,605,974	27,997,648	38,914,179	42,616,400	48,619,146
Totals, Liabilities to Shareholders⁴.....	45,106,321	47,403,413	60,183,500	66,552,229	78,812,090
Liabilities to the Public—					
Debentures.....	242,286,755	277,599,798	322,937,934	389,158,825	429,423,571
Deposits.....	112,227,274	124,733,566	168,310,007	194,904,131	245,513,963
Totals, Liabilities to the Public⁵.....	363,686,767	413,236,909	506,328,076	602,964,243	696,750,185
Totals, Liabilities.....	408,793,088	460,640,322	566,511,576	669,516,472	775,562,275
	CHARTERED BY PROVINCES ⁶				
	1959	1960	1961	1962	1963
	\$	\$	\$	\$	\$
Assets					
Real estate ²	2,593,080	2,424,620	2,694,255	4,573,968	7,780,705
Mortgage loans and agreements of sale.....	197,420,587	223,644,471	169,461,984	215,572,171	288,022,912
Collateral loans.....	2,892,144	2,974,674	1,448,931	3,962,675	4,355,628
Bonds and debentures.....	33,936,518	35,799,773	9,766,188	9,641,413	11,667,357
Stocks.....	11,128,378	12,100,803	12,550,584	15,655,484	7,686,851
Cash.....	7,685,644	4,472,163	5,342,941	3,464,197	2,308,357
Totals, Assets³.....	262,715,544	290,728,768	205,483,633	256,439,854	337,274,251
Liabilities					
Liabilities to Shareholders—					
Capital paid up.....	20,902,070	24,045,050	23,158,009	25,226,797	32,146,664
Reserves.....	41,683,880	30,824,333	29,986,605	31,980,414	35,809,232
Totals, Liabilities to Shareholders⁴.....	70,274,619	67,664,075	59,423,407	64,150,564	73,992,823
Liabilities to the Public—					
Debentures.....	87,454,173	99,559,183	119,196,291	141,210,394	186,695,904
Deposits.....	98,592,261	117,120,690	18,109,616	36,113,215	46,686,198
Totals, Liabilities to the Public⁵.....	192,440,925	223,064,693	146,060,226	192,289,290	263,281,428
Totals, Liabilities.....	262,715,544	290,728,768	205,483,633	256,439,854	337,274,251

¹ Includes companies chartered by the Government of Nova Scotia which, by arrangement, are inspected by the federal Department of Insurance. ² Book value of real estate for company use and other real estate.

³ Includes interest due and accrued and other assets.

⁴ Includes surplus.

⁵ Includes other liabilities

to the public. ⁶ Exclusive of Nova Scotia.

21.—Assets and Liabilities of Trust Companies, 1959-63

Item	CHARTERED BY GOVERNMENT OF CANADA ¹				
	1959	1960	1961	1962	1963
	\$	\$	\$	\$	\$
Assets					
Company Funds^{2,3}	39,702,594	42,503,686	59,858,136	72,443,013	81,472,495
Real estate ⁴	3,496,168	3,510,871	7,334,471	7,980,688	10,604,841
Mortgage loans and agreements of sale	8,609,888	7,914,553	9,398,702	11,355,243	13,792,420
Collateral loans	324,523	417,349	676,996	750,375	621,097
Bonds and debentures	16,867,028	18,411,140	25,475,554	29,969,972	32,818,447
Stocks	6,542,623	6,862,014	9,615,703	13,039,069	15,588,351
Cash	2,903,129	4,032,202	5,537,837	6,128,310	5,487,172
Guaranteed Funds^{2,3}	261,752,047	325,792,913	519,401,875	632,659,981	798,722,300
Mortgage loans and agreements of sale	147,003,172	178,921,263	278,153,089	383,434,559	491,831,983
Collateral loans	6,786,105	9,659,284	11,556,406	12,327,614	13,531,204
Bonds and debentures	96,526,399	124,867,826	210,620,896	218,251,215	270,697,869
Stocks	1,524,926	2,753,835	4,426,981	4,178,170	1,614,009
Cash	7,158,607	5,764,685	9,583,905	8,186,938	13,413,319
Liabilities					
Company Funds⁵	39,702,594	42,503,686	59,858,136	72,443,013	81,472,495
Capital paid up	17,072,542	17,553,140	22,004,140	24,706,315	26,400,185
Reserves	18,832,621	21,214,519	32,823,231	42,135,004	48,223,038
Guaranteed Funds—Trust Deposits and Certificates	261,752,047	325,792,913	519,401,875	632,659,981	798,722,300
CHARTERED BY PROVINCES ⁶					
	1959	1960	1961	1962	1963
	\$	\$	\$	\$	\$
Assets					
Company Funds^{2,3}	117,135,913	116,836,442	129,352,820	140,787,304	162,291,058
Real estate ⁴	16,810,602	12,960,356	14,186,725	17,966,216	19,067,782
Mortgage loans and agreements of sale	9,674,177	9,571,288	10,007,435	8,673,612	13,758,082
Collateral loans	14,546,216	12,803,895	16,277,588	12,492,154	11,184,235
Bonds and debentures	24,584,011	26,406,676	24,104,945	23,049,533	26,496,161
Stocks	37,574,200	40,189,275	48,001,106	53,254,583	55,633,197
Cash	6,928,724	6,465,350	7,245,667	10,849,812	18,667,903
Guaranteed Funds²	660,663,751	820,656,210	899,871,495	1,061,205,513	1,305,530,825
Mortgage loans and agreements of sale	243,457,590	277,110,007	329,404,454	432,117,245	579,166,856
Collateral loans	38,379,063	37,858,967	39,809,753	62,187,479	98,609,361
Bonds and debentures	325,946,836	443,027,864	481,645,708	524,673,307	562,615,974
Stocks	2,846,691	2,752,126	4,642,875	4,571,162	6,499,113
Cash	45,666,001	52,660,881	23,650,461	25,177,931	33,855,327
Liabilities					
Company Funds⁵	117,135,913	116,836,442	129,352,820	140,787,304	162,291,058
Capital paid up	31,847,000	33,614,925	32,945,340	36,917,543	43,271,752
Reserves	53,707,938	54,760,891	60,400,074	71,507,051	87,594,226
Guaranteed Funds—Trust Deposits and Certificates	660,663,751	820,656,210	899,871,495	1,061,205,513	1,305,530,825

¹ Includes companies chartered by the Governments of Nova Scotia, New Brunswick and Manitoba, which, by arrangement, are inspected by the federal Department of Insurance. ² Includes other assets. ³ Includes interest due and accrued. ⁴ Book value of real estate for company use and other real estate. ⁵ Includes other company fund liabilities. ⁶ Chartered by all provinces except Nova Scotia, New Brunswick and Manitoba (see text, p. 1072).

22.—Estates, Trust and Agency Funds of Trust Companies, Chartered by or Supervised by the Federal Government and by Provincial Governments, as at Dec. 31, 1954-63

Year	Federal Companies ¹	Provincial Companies ²	Total	Year	Federal Companies ¹	Provincial Companies ²	Total
	\$	\$	\$		\$	\$	\$
1954.....	663,520,956	3,734,874,516	4,398,395,472	1959.....	1,127,767,607	5,774,745,226	6,902,512,833
1955.....	734,670,479	3,985,662,299	4,720,332,778	1960.....	1,246,508,258	6,143,921,379	7,390,429,637
1956.....	815,367,349	4,318,560,879	5,133,928,228	1961.....	1,948,445,628	6,170,097,541	8,118,543,169
1957.....	886,560,559	4,695,817,867	5,582,378,426	1962.....	2,195,628,230	6,818,580,561	9,014,208,791
1958.....	990,078,160	5,328,920,074	6,318,998,234	1963.....	2,371,284,565	7,594,738,180	9,966,022,745

¹ Includes companies chartered by the Governments of Nova Scotia, New Brunswick and Manitoba which, by arrangement, are inspected by the federal Department of Insurance. ² Excludes provincial companies of Nova Scotia, New Brunswick and Manitoba which are included with federal companies.

Subsection 2.—Licensed Small Loans Companies and Licensed Money-Lenders*

Small loans companies and money-lenders are subject to the Small Loans Act (RSC 1952, c. 251, as amended by SC 1956, c. 46). This Act, first passed in 1939, sets maximum charges on personal cash loans not in excess of \$1,500 and is administered by the Department of Insurance. Lenders not licensed under the Act may not charge more than 1 p.c. per month. Those wishing to make small loans at higher rates must be licensed each year by the Minister of Finance under the Small Loans Act. The Act allows maximum rates, including charges of every kind, of 2 p.c. per month on unpaid balances not exceeding \$300, 1 p.c. per month on the portion of unpaid balances exceeding \$300 but not exceeding \$1,000 and one half of 1 p.c. on any remainder of the balance exceeding \$1,000. Loans in excess of \$1,500 are not regulated and lenders operating entirely above this limit and the larger loans of licensed lenders are thus exempt from the Act. Nor does the Act regulate charges for the instalment financing of sales. Prior to Jan. 1, 1957, the Act applied only to loans of \$500 or less and the maximum rate was 2 p.c. per month.

At the end of 1963, there were six small loans companies and 83 money-lenders licensed under the Act. Small loans companies are incorporated by special Acts of the Parliament of Canada, the first of them commencing business in 1928; the money-lenders include provincially incorporated companies and a few partnerships and individuals. Many of the small loans companies and money-lenders are affiliated with other financial institutions, principally Canadian sales finance companies and American finance or loan companies, and these subsidiary companies account for a high proportion of the total business of licensed lenders. The affiliations with sales finance companies reflect the close relationship between instalment financing and the consumer loan business. The Dominion Bureau of Statistics publishes quarterly balance sheets for sales finance and consumer loan companies as a whole and does not attempt to distinguish two groups within the industry.†

The subsidiary small loans companies and money-lenders obtain most of their funds through their parent companies. A few of the larger companies have supplemented their bank loans by selling short-term paper in the market but the amount has been small compared with the short-term market borrowing of the sales finance companies. The smaller independent companies rely mainly on their shareholders and on borrowing from the chartered banks.

The annual figures of assets and liabilities given in Table 23 for 1960-63 are from the Department of Insurance report.‡

* Prepared by the Research Department of the Bank of Canada in co-operation with the Superintendent of Insurance for Canada.

† See *Business Financial Statistics* (Catalogue No. 61-006). More complete details on the business of licensed lenders are given in the *Report of the Superintendent of Insurance for Canada on Small Loans Companies and Money-Lenders* for the year ended Dec. 31, 1963. (Catalogue No. In 3-4/1963.)

23.—Assets and Liabilities of Small Loans Companies and Money-Lenders, 1960-63

Assets and Liabilities	1960	1961	1962	1963
	\$	\$	\$	\$
Assets	549,397,569	589,671,958	677,428,408	735,660,587
Small loan balances	391,548,554	426,157,274	482,246,944	530,030,909
Balances, large loans and other contracts	143,809,201	149,610,423	179,888,234	187,336,161
Cash	7,136,432	6,114,919	5,924,323	7,999,302
Other	6,903,382	7,789,342	9,368,907	10,294,215
Liabilities	549,397,569	589,671,958	677,428,408	735,660,587
Borrowed money	446,112,043	477,639,594	553,914,368	598,496,241
Reserves for losses	10,966,543	11,603,200	13,202,526	14,962,448
Paid-up capital	39,495,327	42,375,438	45,030,972	48,368,329
Surplus paid in by shareholders	390,390	390,390	407,390	449,865
Earned surplus	20,107,677	25,195,896	29,462,148	34,409,797
Other	32,325,589	32,467,440	35,411,004	38,983,907

The combined companies showed an increase in the amount of business done in 1963 compared with 1962. The number of small loans made to the public during 1963 increased from 1,304,155 to 1,380,063 or by about 6 p.c., and the amount of such loans rose from \$700,906,537 to \$769,648,673 or by about 10 p.c. The average small loan made was approximately \$558 compared with \$537 in 1962. At the end of the year, small loans outstanding numbered 1,112,851 for an amount of \$530,030,909 or an average of \$476 per loan; comparable figures for 1962 were 1,055,266, \$482,246,944 and \$457, respectively.

Gross profits of small loans companies and money-lenders before income taxes and before taking into account any increase or decrease in reserves for bad debts decreased from \$30,517,560 in 1962 (\$19,781,761 being the profit on small loans and \$10,735,799 the profit on business other than small loans) to \$29,175,023 in 1963 (\$19,137,385 being the profit on small loans and \$10,037,638 the profit on business other than small loans).

Subsection 3.—Foreign Exchange

The dollar, established officially as the currency of the united provinces of Canada on Jan. 1, 1858, and extended to cover the New Dominion by the Uniform Currency Act of 1870, was defined as 15/73 of the British gold sovereign.* That is, the par rate of exchange between the dollar and the pound sterling was fixed at \$4.866, making the Canadian currency the equivalent of the United States dollar at parity. With minor variations between the import and export gold points representing the cost of shipping gold in either direction, the value of the pound sterling in Canada remained at this level until the outbreak of World War I. The United States dollar, on the other hand, was at a discount in terms of Canadian funds for the first eleven years after Confederation since it was not redeemable in gold from February 1862 to January 1879. On the basis of gold equivalents it would appear that the greatest monthly average discount on the United States dollar after Confederation was approximately 31 p.c., reached in August 1868. From 1879 to 1914 the dollars of the two countries remained at par, varying only within the gold points or under \$2 per thousand.

On the outbreak of World War I, Canada and Britain suspended the gold standard. For some weeks both the pound and the Canadian dollar rose to a premium in New York. Subsequently both fell back with the pound going to a slight discount. In January 1916 the pound was officially pegged at \$4.76 in American funds. This level was maintained with the help of funds realized by sales of United States securities owned by residents of Britain, by borrowing in the United States and, after the American entry into the War, by the United States Government financing Allied purchases in that country.

* The gold sovereign remained the standard for the Canadian dollar until 1910 when the currency was defined in terms of fine gold, making it the exact gold equivalent of the United States dollar. Both British and United States gold coins were, however, legal tender in Canada for this whole period.

From 1915 to the end of 1917, fluctuations in the rate of exchange between the Canadian and United States dollars did not exceed 2 p.c. on either side of parity; the pound was stable in terms of United States dollars during this period. In 1918 the Canadian dollar began to weaken. After the pound was unpegged in 1919, the Canadian dollar declined further and in 1920 it fell to 82 cents in New York with sterling going as low as \$3.18.

By the latter half of 1922 the Canadian dollar had returned practically to par in New York. Despite some further weakness in sterling, the dollar remained close to that level during the next two years, averaging 98.04 and 98.73 cents in terms of the United States dollar in 1923 and 1924, respectively, and fluctuating between a discount of about 3.6 cents and a premium of approximately 0.4 cents. After Britain resumed gold payments in April 1925, the range of fluctuation of the Canadian dollar narrowed further. From Canada's return to the gold standard in the period July 1, 1926 to January 1929, the exchange rate remained within the gold points. The Canadian dollar then went to a slight discount in New York. With the exception of the period July to November 1930, when it went to a small premium in New York, the dollar remained below parity until Britain abandoned the gold standard in September 1931. After that month the pound sterling depreciated sharply and the Canadian dollar followed, reaching lows* in New York of 80.5 cents in December 1931 and 82.6 cents in April 1933.

Following the prohibition of gold exports in the latter month by the United States, the pound and the Canadian dollar strengthened rapidly in terms of American funds. By November 1933 both currencies had reached a premium in New York. Meanwhile, in a series of steps beginning with permitting the export of newly mined gold in August 1933, the United States moved toward resumption of the gold standard. As of Feb. 1, 1934, the United States Treasury undertook to buy all gold offered at \$35 per ounce. After that the exchange rate between the Canadian and United States dollars stabilized. Until the outbreak of war in 1939 much of the trading was conducted within one cent of parity although the Canadian dollar in New York did go as high as 103.6 cents (September 1934) and as low as 98.0 cents (September 1938).*

On the outbreak of World War II in September 1939, Britain and other sterling countries introduced foreign exchange control involving fixed buying and selling rates of \$4.02½ and \$4.03½, respectively, in terms of the United States dollar. The Canadian dollar in New York declined until Sept. 16, 1939, when the Government instituted foreign exchange control† in Canada and established fixed buying and selling rates of \$1.10 to \$1.11 for the U.S. dollar and \$4.43 to \$4.47 for sterling. As compared with previous months, the depreciation of the Canadian dollar in terms of United States funds was approximately half as great as that of the pound sterling.

Apart from a minor adjustment on Oct. 15, 1945, when selling rates for U.S. dollars and sterling were lowered to \$1.10½ and \$4.45, respectively, the official rates for the Canadian dollar remained unchanged until July 5, 1946. At that time the rate on the U.S. dollar was restored to par, with buying and selling rates for that currency of \$1.00 to \$1.00½ and for sterling \$4.02 to \$4.04. These rates continued in effect until Sept. 19, 1949 when, following a 30.5-p.c. reduction by Britain in the value of sterling to \$2.80 U.S. (an action which was paralleled in varying degrees by numerous other currencies), Canada returned to the former official rates of \$1.10 and \$1.10½ for United States funds. Sterling was quoted at \$3.07¼ and \$3.08½ on the basis of the New York cross rate.

On Sept. 30, 1950, the Minister of Finance announced that official fixed foreign exchange rates which had been in effect at varying levels since 1939 would be withdrawn effective Oct. 2, and that the rate would henceforth be determined in the market for foreign exchange. This policy was carried out within the framework of exchange control until Dec. 14, 1951, at which time the Foreign Exchange Control regulations were revoked by the Governor in Council, terminating the period of exchange control that had prevailed in Canada since 1939. The Foreign Exchange Control Act was repealed in 1952. On

* Noon quotations. Daily highs and lows may have exceeded these rates.

† The operations of the Foreign Exchange Control Board from the time of its establishment to the termination of exchange control in December 1951 are reviewed in the 1941 to 1952-53 editions of the Year Book.

May 2, 1962, the Minister of Finance announced that the Canadian dollar was being stabilized at a fixed par value of 92½ cents in terms of United States currency. This action was taken with the concurrence of the International Monetary Fund and, in accordance with the Articles of Agreement of that organization, the Government of Canada undertook to maintain the Canadian exchange rate within a margin of 1 p.c. on either side of the established par value.

The movements of the U.S. dollar in Canadian funds from January 1957 to December 1965 are shown in Table 24.

24.—Price of the United States Dollar in Canada, by Month, 1956-65

NOTE.—Rates published by Bank of Canada. Noon average market rate for business days in period.
(Canadian cents per U.S. dollar)

Month	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
January.....	99.87	96.07	98.47	96.69	95.31	99.29	104.50	107.71	108.02	107.38
February.....	99.91	95.83	98.10	97.49	95.17	98.96	104.88	107.76	108.00	107.58
March.....	99.87	95.61	97.73	96.98	95.09	98.73	104.94	107.80	108.05	108.11
April.....	99.68	95.97	97.06	96.35	96.29	98.89	104.98	107.68	108.09	107.92
May.....	99.18	95.56	96.69	96.29	97.81	98.75	108.23	107.72	108.09	107.95
June.....	98.53	95.32	96.18	95.88	98.23	100.55	108.79	107.82	108.09	108.23
July.....	98.18	95.09	96.00	95.74	97.84	103.41	107.89	107.97	108.13	108.35
August.....	98.12	94.80	96.46	95.44	96.98	103.15	107.76	108.29	107.87	107.84
September.....	97.77	95.92	97.68	95.16	97.25	103.08	107.68	107.98	107.61	107.64
October.....	97.32	96.47	97.07	94.77	97.85	103.03	107.60	107.79	107.53	107.51
November.....	96.44	96.24	96.83	95.03	97.67	103.57	107.68	107.76	107.39	107.49
December.....	96.05	97.74	96.46	95.12	98.24	104.27	107.60	107.93	107.46	107.58
Annual Average.....	98.41	95.88	97.06	95.90	96.97	101.32	106.89	107.85	107.86	107.80

25.—Canada's Official Holdings of Gold and United States Dollars, as at Dec. 31, 1956-65

NOTE.—Holdings comprise gold, U.S. dollars and short-term securities of the U.S. Government held by the Exchange Fund Account, other government accounts and net holdings of the Bank of Canada.

(Millions of U.S. dollars)

Year	Gold	U.S. Dollars	Total	Year	Gold	U.S. Dollars	Total
1956.....	1,103.3	832.9	1,936.2	1961.....	946.2	1,109.6	2,055.8
1957.....	1,100.3	728.0	1,828.3	1962.....	708.5	1,830.9	2,539.4 ²
1958.....	1,078.1	861.0	1,939.1	1963.....	817.2	1,777.8	2,595.0 ³
1959.....	959.6 ¹	909.6	1,869.2 ¹	1964.....	1,025.7	1,648.6	2,674.3
1960.....	885.3	943.9	1,829.2	1965.....	1,150.8	1,513.7	2,664.5

¹ On Oct. 1, 1959, \$62,500,000 representing the gold portion of Canada's increased quota was transferred to the International Monetary Fund.

² Includes the proceeds of a drawing equivalent to U.S. \$300,000,000 which was made from the International Monetary Fund in June 1962 and which was outstanding at year-end; the amount of Canada's net obligation to the International Monetary Fund was \$276,000,000 at the end of 1962.

³ The amount of Canada's net obligation to the International Monetary Fund was \$196,000,000 at the end of 1963.

Subsection 4.—The Bond Market*

Sales of Canadian Bonds.—Canadian borrowers, both government and corporations, raised a net total of \$2,887,000,000 in the bond market in 1964, a slight increase over the total of \$2,787,000,000 raised in 1963. However, there was a considerable change in the competition of borrowing in the later year. The Government of Canada reduced its borrowing from \$827,000,000 to \$458,000,000, the lowest level since 1957; sharp increases took place in the sales of municipal and corporate bonds; and net sales of provincial bonds were relatively unchanged.

* Prepared in the Business Finance Division of the Dominion Bureau of Statistics, using Bank of Canada figures.

The Government of Canada issues Treasury bills, marketable bonds and non-marketable bonds, most of the latter being in the form of Canada Savings Bonds. The net annual increase in Canada Savings Bonds has been quite stable over the four years 1961-64, ranging from \$540,000,000 in 1962 to \$480,000,000 in 1964, but net issues of marketable bonds and Treasury bills had much larger year-to-year variations.

Bonds Outstanding.—Total government and business bonds outstanding were estimated at \$45,830,000,000 at Dec. 31, 1964, an increase of 20 p.c. over the total of \$38,274,000,000 outstanding at the end of 1961. The largest increase was shown by provincial bonds which went up 35 p.c. over the following three years and the smallest increase by Government of Canada bonds which advanced 11 p.c. In 1963 the Quebec Government purchased the private hydro-electric companies operating in that province and the corporate bonds of these companies were replaced by provincial government guaranteed bonds. Thus, debt of provincial governments as a whole increased by more and debt of corporations by less than would otherwise have been the case.

The total of outstanding bonds includes Treasury bills, finance company paper and other short-term commercial paper. It does not include the term deposits, certificates and debentures of trust and mortgage loan companies, which totalled about \$2,500,000,000 at the end of 1964. Also excluded is mortgage debt, which the Central Mortgage and Housing Corporation estimated at over \$16,000,000,000 at the end of 1963.

26.—Net New Issues of Canadian Bonds, 1961-64, and Bonds Outstanding, as at Dec. 31, 1961-64

Item	1961	1962	1963	1964
BONDS ISSUED				
	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Government of Canada.....	890	801	827	458
Treasury bills.....	—100	280	75	—100
Marketable bonds.....	347	38	273	55
Non-marketable bonds.....	643	483	479	602
Provincial Government.....	944	709	899	941
Municipal Government.....	317	243	302	395
Corporations.....	344	661	729	1,082
Finance company paper.....	—51	179	187	283
Other short-term paper.....	65	58	—43	46
Bonds.....	550	423	585	743
Other bonds.....	28	8	29	11
Totals.....	2,521	2,423	2,787	2,887
BONDS OUTSTANDING, DEC. 31				
	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Government of Canada.....	18,636	19,448	20,276	20,733
Provincial Government.....	8,197	9,023	10,170	11,120
Municipal Government.....	4,058	4,376	4,678	5,073
Corporate.....	7,119	7,672	7,929	8,607
Institutional.....	264	271	297	297
Totals.....	38,274	40,790	43,350	45,830

Estimated Distribution of Holdings.—Table 27 shows the estimated distribution as at Dec. 31, 1963 of government and corporate debt among the major purchasers of securities. The largest holders were the chartered banks with 11.6 p.c. of the outstanding debt, followed by life insurance companies with 10.3 p.c., trustee pension plans with 7.9 p.c. and the Bank of Canada with 7.4 p.c.

27.—Estimated Distribution of Bond Holdings, as at Dec. 31, 1963

Holder	Government of Canada Bonds	Provincial Government Bonds	Municipal Government Bonds	Corporate ¹ and Other Bonds	Total
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Bank of Canada.....	3,115	—	—	177	3,292
Chartered banks.....	3,705	372	307	487	4,871
Government of Canada.....	769	—	—	—	769
Provincial governments.....	550	1,413	310	167	2,440
Municipal governments.....	111	114	403	2	630
Life insurance companies.....	611	1,075	727	2,175	4,588
Other insurance companies.....	530	332	151	187	1,200
Quebec savings banks.....	31	78	33	26	168
Trust and loan companies.....	503	205	140	240	1,088
Trusted pension plans.....	365	1,868	594	892	3,719
All other resident.....	9,374	2,860	1,130	1,078	14,442
Non-resident.....	1,069	2,772	1,278	3,459	8,578
All Holders.....	20,733	11,089	5,073	8,890	45,785

¹ Excludes a small amount of debt which could not be identified by issue. All short-term commercial borrowing is included in the "All other resident" item.

PART II.—INSURANCE*

Section 1.—Life Insurance

Life insurance in force in Canada with companies registered by the Federal Government (exclusive of fraternal benefit societies) amounted to over \$62,672,000,000 at the end of 1964, an increase of \$5,868,000,000 during the year. The ratio of gain in business in force, expressed as a percentage of the amount in force at the beginning of the same year, stood at 10.3 p.c. in 1964.

Year	<i>In Force at Beginning of Year</i>	<i>Increase in Force for the Year</i>	<i>Per- centage Gain</i>
	\$'000,000	\$'000,000	
1930.....	6,157	335	5.4
1935.....	6,221	38	0.6
1940.....	6,776	200	2.9
1945.....	9,140	612	6.7
1950.....	14,409	1,337	9.3
1955.....	23,135	2,317	10.0
1956.....	25,452	3,635	14.3
1957.....	29,087	4,000	13.8
1958.....	33,087	3,409	10.3
1959.....	36,496	4,378	12.0
1960.....	40,874	3,775	9.2
1961.....	44,649	3,635	8.1
1962.....	48,284	3,949	8.2
1963.....	52,233	4,571	8.8
1964.....	56,804	5,868	10.3

* Material in this Part, except as otherwise indicated, was prepared under the direction of the Superintendent of Insurance for Canada, Ottawa. More detailed data are available in the annual reports of the Department of Insurance.

Subsection 1.—Summary of Life Insurance in Canada

Table 1 summarizes insurance premiums, claims, amounts of new policies effected and amounts of insurance in force on Dec. 31, 1964. These data are presented according to supervising government authorities for the companies and societies concerned, and according to nationality of company or society.

1.—Summary of Life Insurance in Canada according to Supervising Government Authority and by Nationality of Company or Society, 1964

Supervising Authority and Nationality of Company or Society	Insurance Premiums	Claims ¹	New Policies Effected	Insurance in Force, Dec. 31
	\$'000	\$'000	\$'000	\$'000
Supervising Authority				
Federally Registered.....	925,102	335,230	7,954,378	63,576,236
Companies.....	908,038	329,275	7,802,505	62,672,311
Societies.....	17,064	5,955	151,873	903,925
Provincially Licensed Only.....	67,152	25,333	947,838	4,396,930
Within Province of Incorporation—				
Companies.....	51,185	17,622	698,884	3,409,250
Societies.....	3,897	2,477	95,292	316,430
Outside Province of Incorporation—				
Companies.....	8,930	2,996	128,269	525,152
Societies.....	3,140	2,238	25,393	146,098
Totals.....	992,254	360,563	8,902,216	67,973,166
Nationality of Company or Society				
Canadian Companies—				
Federally registered.....	602,050	224,797	5,067,072	43,209,489
Provincially licensed only.....	60,115	20,618	827,153	3,934,402
Canadian Societies—				
Federally registered.....	10,839	3,828	121,953	658,838
Provincially licensed only.....	7,037	4,715	120,685	462,528
British Companies—				
Federally registered.....	45,959	8,955	493,267	2,706,336
Foreign Companies—				
Federally registered.....	260,029	95,523	2,242,166	16,756,486
Foreign Societies—				
Federally registered.....	6,225	2,127	29,921	245,087

¹ Death, disability and maturity under insurance contracts.

Subsection 2.—Operational Statistics for Life Insurance Transacted in Canada by Companies under Federal Registration

The amount of life insurance in force in Canada has shown an almost continuous advance year by year since the beginning of the record in 1869. The amount per capita of the estimated population has more than doubled since 1955.

The operations analysed in the tables of this Subsection, with the exception of Table 6, include only those of companies under federal registration and are exclusive of fraternal organizations and provincial licensees. However, companies under federal registration account for over 92 p.c. of the life insurance in force in Canada.

2.—Life Insurance Effectuated and in Force in Canada by Companies under Federal Registration, Decennially 1880-1950 and Annually 1955-64

NOTE.—Figures for 1889-1900 are given in the 1938 Year Book, p. 953; for 1901-39 in the 1942 edition, p. 855; and for 1940-54 in the 1957-58 edition, p. 1168. Statistics of fraternal society insurance, excluded here, are given at pp. 1087-1089.

Year	New Insurance Effectuated during Year	Insurance in Force Dec. 31				Insurance in Force per Capita ¹
		Canadian Companies	British Companies	Foreign Companies	Total	
	\$	\$	\$	\$	\$	\$
1880.....	13,906,887	37,838,518	19,789,863	33,643,745	91,272,126	21.45
1890.....	39,802,956	135,218,990	31,613,730	31,591,847	248,424,567	51.98
1900.....	67,729,115	267,151,086	39,485,344	124,433,416	431,069,846	81.32
1910.....	150,785,305	565,667,110	47,816,775	242,629,174	866,113,059	122.51
1920.....	630,110,900	1,664,348,605	76,883,090	915,793,798	2,657,025,493	310.55
1930.....	884,749,748	4,319,370,209	117,410,860	2,055,502,125	6,492,283,194	636.00
1940.....	590,205,536	4,609,213,977	145,603,299	2,220,505,184	6,975,322,460	612.89
1950.....	1,798,864,211	10,756,249,942	342,878,530	4,646,707,595	15,745,836,067	1,148.33
1955.....	3,154,670,863	17,401,229,498	691,660,141	7,358,681,886	25,451,571,525	1,621.33
1956.....	4,119,767,664	19,783,194,985	819,968,279	8,484,252,879	29,087,416,143	1,808.83
1957.....	4,936,358,903	22,262,730,280	994,762,620	9,829,563,601	33,087,056,501	1,992.00
1958.....	5,129,714,126	24,560,264,322	1,170,343,106	10,765,171,257	36,495,778,685	2,136.76
1959.....	5,622,229,817	27,695,965,612	1,332,991,403	11,844,852,757	40,873,809,772	2,337.92
1960.....	5,692,887,763	30,418,380,871	1,554,844,168	12,675,749,459	44,648,974,498	2,498.54
1961.....	6,113,480,078	33,143,378,921	1,778,255,673	13,362,848,638	48,284,483,232	2,647.47
1962.....	6,027,069,888	35,907,032,820	2,040,700,311	14,285,636,913	52,233,370,044	2,812.78
1963.....	6,933,120,080	39,135,221,497	2,328,769,718	15,339,860,385	56,803,851,600	3,006.13
1964.....	7,802,504,767	43,209,488,534	2,706,336,254	16,756,485,863	62,672,310,651	3,258.24

¹ Based on official estimates of population.

3.—Summary of Life Insurance in Canada Transacted by Companies under Federal Registration, 1962-64

Item	1962	1963	1964
Canadian Companies—			
New policies effectuated during year..... No.	372,400	387,786	411,960
..... \$	4,081,609,538	4,661,935,501	5,067,071,852
Policies in force Dec. 31..... No.	5,228,321	5,300,787	5,400,676
..... \$	35,907,032,820	39,135,221,497	43,209,488,534
Policies ceased by death or maturity..... No.	52,077	55,028	57,488
..... \$	187,491,327	206,767,303	217,321,442
Insurance premiums..... \$	537,360,977	566,875,249	602,049,648
Claims incurred ¹ \$	196,569,562	220,924,829	224,797,465
British Companies—			
New policies effectuated during year..... No.	35,986	34,361	34,392
..... \$	350,148,518	406,984,738	493,267,178
Policies in force Dec. 31..... No.	282,913	295,008	308,152
..... \$	2,040,700,311	2,328,769,718	2,706,336,254
Policies ceased by death or maturity..... No.	2,068	2,394	2,339
..... \$	7,429,904	7,806,134	8,763,908
Insurance premiums..... \$	36,213,550	40,091,286	45,959,175
Claims incurred ¹ \$	8,781,188	8,914,208	8,955,056
Foreign Companies—			
New policies effectuated during year..... No.	284,165	269,090	263,553
..... \$	1,595,311,832	1,864,199,841	2,242,165,737
Policies in force Dec. 31..... No.	4,726,342	4,653,937	4,583,808
..... \$	14,285,636,913	15,339,860,385	16,756,485,863
Policies ceased by death or maturity..... No.	60,962	65,590	66,540
..... \$	77,322,635	84,410,910	91,192,722
Insurance premiums..... \$	233,560,185	244,412,339	260,029,173
Claims incurred ¹ \$	82,121,435	87,087,771	95,522,880

For footnote, see end of table, p. 1084.

3.—Summary of Life Insurance in Canada Transacted by Companies under Federal Registration, 1962-64—concluded

Item		1962	1963	1964
All Companies—				
New policies effected during year.....	No.	692,551	691,237	709,905
	\$	6,027,069,888	6,933,120,080	7,802,504,767
Policies in force Dec. 31.....	No.	10,237,576	10,249,732	10,292,636
	\$	52,233,370,044	56,803,851,600	62,672,310,651
Policies ceased by death or maturity.....	No.	115,107	123,012	126,367
	\$	272,243,866	298,984,347	317,278,072
Insurance premiums.....	\$	807,134,712	851,378,874	908,037,996
Claims incurred ¹	\$	287,472,185	316,926,808	329,275,401

¹ Death, disability and maturity under insurance and annuity contracts for 1962 and 1963; death, disability and maturity under insurance contracts for 1964.

4.—Ordinary and Industrial Life Insurance Policies Effected and in Force in Canada by Companies under Federal Registration, 1962-64

Year, Type of Policy and Nationality of Company	New Policies Effected			Policies in Force Dec. 31		
	No.	Amount	Average Amount per Policy	No.	Amount	Average Amount per Policy
		\$	\$		\$	\$
1962						
Ordinary Policies—						
Canadian.....	369,696	2,860,037,465	7,736	5,075,006	23,230,070,969	4,577
British.....	35,873	325,791,053	9,082	255,171	1,808,510,021	7,087
Foreign.....	252,176	1,242,399,386	4,927	2,661,281	8,278,944,823	3,111
Industrial Policies—						
Canadian.....	—	—	—	133,151	70,187,291	527
British.....	—	—	—	27,191	3,365,876	124
Foreign.....	29,079	16,013,266	551	2,047,127	793,138,724	387
1963						
Ordinary Policies—						
Canadian.....	384,803	3,128,717,327	8,131	5,155,816	24,715,103,219	4,794
British.....	34,199	364,112,229	10,647	268,371	2,051,522,470	7,644
Foreign.....	247,712	1,367,535,580	5,521	2,720,131	8,812,138,127	3,240
Industrial Policies—						
Canadian.....	—	—	—	123,601	66,491,681	538
British.....	—	—	—	25,979	3,167,291	122
Foreign.....	18,140	10,237,154	564	1,915,433	753,487,915	393
1964						
Ordinary Policies—						
Canadian.....	408,595	3,518,198,772	8,610	5,262,296	26,502,689,639	5,036
British.....	34,265	404,705,850	11,811	282,554	2,318,879,284	8,207
Foreign.....	245,806	1,491,667,115	6,068	2,773,307	9,396,361,849	3,388
Industrial Policies—						
Canadian.....	—	—	—	115,323	63,157,245	548
British.....	—	—	—	24,881	2,986,453	120
Foreign.....	14,016	8,020,612	572	1,791,512	728,280,569	407

5.—Group Life Insurance Effectuated and in Force in Canada by Companies under Federal Registration, 1962-64

Year and Nationality of Company	Effectuated		In Force Dec. 31			
	Policies	Amount	Policies	Certificates	Amount	Average Amount per Certificate
	No.	\$	No.	No.	\$	\$
1962						
Canadian.....	2,704	1,221,572,073	20,164	11,112,827	12,606,774,560	1,134
British.....	113	24,357,460	551	46,905	228,824,414	4,878
Foreign.....	2,910	336,899,180	17,934	3,765,010	5,213,553,366	1,385
1963						
Canadian.....	2,983	1,533,218,174	21,370	11,821,095	14,353,626,597	1,214
British.....	162	42,872,509	653	56,516	274,079,957	4,850
Foreign.....	3,238	486,427,107	18,373	4,355,598	5,774,234,343	1,326
1964						
Canadian.....	3,365	1,548,873,080	23,057	13,328,721	16,643,641,650	1,249
British.....	127	88,561,328	717	65,238	384,470,517	5,893
Foreign.....	3,731	742,478,010	18,989	5,257,234	6,631,843,445	1,261

6.—Insurance Death Rates in Canada, 1962-64

Type of Insurer	1962			1963			1964		
	Policies Exposed to Risk	Policies Terminated by Death	Death Rate per 1,000	Policies Exposed to Risk	Policies Terminated by Death	Death Rate per 1,000	Policies Exposed to Risk	Policies Terminated by Death	Death Rate per 1,000
	No.	No.		No.	No.		No.	No.	
All companies, ordinary.....	7,935,499	42,901	5.4	8,090,829	45,882	5.7	8,259,604	46,082	5.6
All companies, industrial.....	2,292,344	29,057	12.7	2,151,118	29,754	13.8	2,012,567	28,406	14.1
Fraternal benefit societies.....	496,537	4,067	8.4	490,374	4,251	8.7	496,308	4,361	8.8
Totals.....	10,714,380	76,025	7.1	10,732,321	79,887	7.4	10,768,479	78,849	7.3

Subsection 3.—Finances of Companies Transacting Life Insurance under Federal Registration

The financial statistics in Tables 7 and 8 relate only to life insurance transacted by companies under federal registration. The figures for British and foreign companies apply to their assets, liabilities and operations in Canada only. On the other hand, the assets and liabilities, revenue and expenditure of Canadian companies are given for total business, including business arising outside of Canada as well as in Canada.

7. —Total Assets and Liabilities for Life Insurance of Canadian Companies under Federal Registration and Assets and Liabilities in Canada for Life Insurance of British and Foreign Companies under Federal Registration, 1962-64.

Assets and Liabilities	1962	1963	1964
	\$	\$	\$
Canadian Companies			
Total Assets¹.....	9,811,701,596	10,522,735,490	11,311,660,952
Bonds.....	4,406,499,653	4,647,180,012	4,873,843,798
Stocks.....	555,714,167	573,590,242	654,753,699
Mortgage loans on real estate.....	3,743,923,588	4,110,569,893	4,518,559,633
Agreements of sale of real estate.....	3,612,059	4,654,431	6,081,314
Real estate.....	304,103,625	315,589,652	327,023,761
Policy loans.....	476,525,931	496,321,955	518,703,162
Cash.....	83,011,556	104,317,302	90,646,318
Investment income, due and accrued.....	102,193,008	108,531,777	116,958,267
Outstanding insurance premiums and annuity considerations.....	75,725,020	74,322,044	76,750,520
Shares of company's capital stock (purchased under mutualization plan).....	19,099,930	15,450,000	10,650,000
Assets in segregated funds (at market value).....	5,052,066	24,861,161	60,158,388
Other assets.....	36,340,993	47,347,021	57,532,092
Total Liabilities.....	9,187,473,406	9,839,190,502	10,563,780,067
Actuarial reserve for contracts in force.....	7,678,852,499	8,169,630,509	8,712,667,941
Outstanding claims under contracts.....	80,100,665	99,187,150	103,896,900
Amounts on deposit pertaining to contracts.....	754,200,963	823,005,097	904,447,952
Segregated funds.....	5,052,066	24,861,161	60,158,388
Other liabilities.....	669,267,213	722,506,585	782,608,886
Surplus.....	607,392,331	666,533,584	729,996,726
Capital stock paid up.....	16,835,859	17,011,404	17,884,159
British Companies			
Assets in Canada².....	623,746,252	707,601,679	797,069,554
Bonds.....	340,868,997	373,526,632	392,759,401
Stocks.....	77,198,096	94,153,880	118,097,902
Mortgage loans on real estate.....	160,111,821	190,607,375	231,675,737
Real estate.....	19,679,296	18,693,373	20,519,232
Policy loans.....	11,798,349	12,809,738	13,873,562
Cash.....	3,531,247	1,430,067	2,257,172
Investment income, due and accrued.....	2,634,383	2,830,979	3,207,108
Outstanding insurance premiums and annuity considerations.....	2,918,754	2,770,709	2,674,149
Assets in segregated funds.....	—	515,669	727,733
Other assets.....	5,005,309	10,263,257	11,277,558
Liabilities in Canada.....	563,941,164	638,317,037	718,564,885
Actuarial reserve for contracts in force.....	549,445,711	618,620,367	694,584,509
Outstanding claims under contracts.....	3,575,044	3,822,893	4,806,445
Segregated funds.....	—	515,669	727,733
Other liabilities.....	10,920,409	15,358,108	18,446,198
Excess of assets over liabilities in Canada.....	59,805,088	69,284,642	78,504,669
Foreign Companies			
Assets in Canada².....	1,799,646,595	1,912,181,644	1,963,269,188
Bonds.....	1,212,682,813	1,237,865,939	1,178,234,994
Stocks.....	1,840,000	2,055,300	2,264,500
Mortgage loans on real estate.....	448,767,256	531,673,132	624,823,361
Real estate.....	6,452,347	6,455,398	20,058,414
Policy loans.....	81,478,818	84,427,998	87,328,259
Cash.....	17,292,824	17,191,928	16,274,953
Investment income, due and accrued.....	20,611,625	22,125,990	22,515,070
Outstanding insurance premiums and annuity considerations.....	8,933,139	8,906,606	9,791,840
Other assets.....	1,587,773	1,479,353	1,977,797
Liabilities in Canada.....	1,604,248,722	1,706,619,834	1,786,169,524
Actuarial reserve for contracts in force.....	1,467,513,801	1,555,014,242	1,619,055,795
Outstanding claims under contracts.....	19,147,501	20,413,617	22,900,164
Other liabilities.....	117,587,420	131,191,975	144,213,565
Excess of assets over liabilities in Canada.....	195,397,873	205,561,810	177,099,664

¹ At book values. The liabilities include a reserve equal to the amount, if any, by which the total book value of bonds, stocks and real estate exceeds the total market value (or amortized value where applicable). ² At market values.

8.—Total Revenue and Expenditure for Life Insurance Transacted by Canadian Companies under Federal Registration and Revenue and Expenditure in Canada for Life Insurance Transacted by British and Foreign Companies under Federal Registration, 1962-64.

Revenue and Expenditure	1962	1963	1964
	\$	\$	\$
Canadian Companies			
Total Revenue.....	1,634,090,425	1,741,361,787	1,897,486,817
Insurance premiums and annuity considerations.....	1,120,269,350	1,181,394,382	1,284,966,622
Investment income.....	481,375,636	525,631,408	578,944,182
Sundry items.....	32,445,439	34,335,997	33,576,013
Total Expenditure.....	1,548,186,744	1,660,232,913	1,807,125,304
Claims incurred.....	572,056,264	623,342,919	680,587,764
Normal increase in actuarial reserve.....	465,387,915	488,743,250	532,614,494
Taxes, licences and fees.....	30,130,773	32,386,030	34,037,100
Commissions and general expenses.....	249,722,492	266,156,383	287,634,170
Sundry items.....	76,154,607	82,694,163	88,254,270
Dividends to policyholders.....	139,293,991	151,641,798	165,028,870
Increase in provision for profits to policyholders.....	15,440,697	15,278,370	18,968,636
Analysis of Increase in Surplus—			
Excess of revenue over expenditure.....	85,903,681	81,128,874	90,361,513
Net capital gain on investments.....	-7,099,234	-448,835	-712,697
Other credits to surplus (net).....	-10,396,264 ¹	-1,339,600 ¹	899,141 ¹
Net increase in special reserves or funds.....	-13,696,955	-16,383,266	-15,079,009
Special increase in actuarial reserve.....	-2,569,340	-2,034,760	-9,877,135
Dividends to shareholders.....	-2,293,217 ²	-2,243,932 ²	-2,433,991
Increase in surplus (policyholders and shareholders).....	49,851,671	58,678,481	63,157,822
British Companies			
Revenue in Canada.....	114,601,159	129,472,597	143,176,165
Insurance premiums and annuity considerations.....	85,146,635	92,545,611	98,915,129
Investment income.....	29,906,324	35,130,197	40,335,404
Sundry items.....	2,548,200	1,796,789	3,925,632
Expenditure in Canada.....	53,667,088	61,027,253	69,458,537
Claims incurred.....	28,129,382	32,547,385	36,780,812
Taxes, licences and fees.....	966,112	1,342,136	1,518,147
Commissions and general expenses.....	16,817,232	18,310,000	19,301,870
Other expenditure.....	1,523,438	1,782,492	2,014,832
Dividends to policyholders.....	6,280,924	7,045,240	9,842,876
Foreign Companies			
Revenue in Canada.....	344,544,290	361,360,019	385,096,030
Insurance premiums and annuity considerations.....	242,888,277	252,158,377	267,154,978
Investment income.....	86,410,033	92,630,394	100,045,655
Sundry items.....	15,245,980	16,671,248	17,895,397
Expenditure in Canada.....	252,397,524	264,764,518	287,431,470
Claims incurred.....	128,109,843	132,062,919	143,088,010
Taxes, licences and fees.....	9,455,446	12,763,771	17,134,368
Commissions and general expenses.....	58,015,357	59,618,377	62,077,276
Other expenditure.....	14,427,634	14,673,762	16,188,804
Dividends to policyholders.....	42,389,244	45,645,689	48,943,012

¹ Includes amounts written off shares purchased under mutualization plan.
than those purchased by the company under mutualization plan.

² Dividends on shares other

Subsection 4.—Life Insurance in Canada Transacted by Fraternal Benefit Societies

In addition to life insurance, some fraternal benefit societies grant other insurance benefits to members, notably sickness benefits, but these are relatively unimportant. Table 9 gives statistics of life insurance in Canada transacted by fraternal benefit societies and Table 10 shows statistics of assets, liabilities, income and expenditure relating to all business of Canadian societies and to the business in Canada of foreign societies. The rates charged by these societies are computed to be sufficient to provide the benefits granted, having regard for actuarial principles. The benefit funds of each society must be valued annually by a qualified actuary (Fellow, by examination, of the Institute of Actuaries of Great Britain, of the Faculty of Actuaries in Scotland, or of the Society of Actuaries) and a readjustment of rates or benefits must be made, unless the actuary

certifies to the solvency of each fund. The first sections of Tables 9 and 10 relate to the Canadian societies registered by the federal Department of Insurance; there were 15 such societies at the end of 1964, only one of which did not grant life insurance benefits.

Under an amendment to the Insurance Act, effective Jan. 1, 1920, all foreign fraternal benefit societies were required to obtain authority from the Federal Government prior to transacting business in Canada. However, any such societies which at that date were transacting business under provincial licences, though forbidden to accept new members, were permitted to continue all necessary transactions in respect of insurance already in force. Most of these societies and some foreign societies that had not been licensed previously by the provinces have since obtained federal authority to transact business. At the end of 1964 there were 35 foreign fraternal benefit societies federally registered to transact business in Canada, although two of these do not grant life insurance benefits.

9.—Summary of Life Insurance in Canada Transacted by Fraternal Benefit Societies under Federal Registration, 1962-64

Item	1962	1963	1964
Canadian Societies			
Premiums.....	\$ 6,564,923	8,005,661	10,839,374
Claims incurred.....	\$ 4,435,946	5,034,573	5,602,166
New certificates effected.....	No. 36,039	33,576	35,579
	\$ 118,675,589	119,167,173	121,952,835
Certificates in force Dec. 31.....	No. 311,446	315,836	322,137
	\$ 567,531,469	613,059,254	658,838,155
Certificates ceased by death or maturity.....	No. 3,034	3,213	3,358
	\$ 2,770,094	3,158,037	3,406,932
Foreign Societies			
Premiums.....	\$ 5,173,554	5,434,266	6,224,760
Claims incurred.....	\$ 2,707,101	2,869,636	3,007,317
New certificates effected.....	No. 11,481	11,403	12,927
	\$ 20,245,429	28,250,934	29,920,567
Certificates in force Dec. 31.....	No. 148,233	148,785	150,882
	\$ 222,328,090	232,054,345	245,087,050
Certificates ceased by death or maturity.....	No. 1,875	2,022	2,241
	\$ 1,828,257	1,954,786	2,126,961

10.—Financial Statistics for Fraternal Benefit Societies under Federal Registration, 1962-64

Item	1962	1963	1964
	\$	\$	\$
Canadian Societies¹			
Assets	192,263,253	213,233,586	237,202,293
Bonds.....	132,951,478	142,250,011	157,776,937
Stocks.....	11,322,422	12,440,391	13,671,631
Mortgage loans on real estate.....	30,284,391	38,688,077	43,957,568
Agreements of sale of real estate.....	405,059	35,117	19,151
Real estate.....	3,607,453	3,822,715	3,945,503
Certificate loans and liens.....	7,360,999	8,350,108	8,937,063
Cash.....	2,419,145	3,216,114	2,474,153
Investment income, due and accrued.....	1,645,887	1,801,353	2,029,951
Outstanding premiums, contributions and dues.....	1,957,571	2,361,783	4,030,641
Other.....	308,848	267,917	359,695
Liabilities and Surplus	192,263,253	213,233,586	237,202,293
Actuarial reserve.....	140,845,711	155,452,383	171,368,498
Outstanding claims.....	1,457,825	1,913,027	2,330,707
Amounts on deposit.....	542,849	737,617	949,568
Other.....	28,431,567	32,110,490	36,372,983
Surplus.....	20,985,301	23,020,069	26,180,537
Revenue	44,342,262	49,992,366	56,201,770
Premiums, contributions and dues.....	34,794,306	39,285,596	44,130,100
Investment income.....	8,721,235	9,803,584	11,140,913
Other.....	826,631	903,186	930,757

¹ All funds, business in and out of Canada.

10.—Financial Statistics for Fraternal Benefit Societies under Federal Registration, 1962-64
—concluded

Item	1962	1963	1964
	\$	\$	\$
Canadian Societies—concluded			
Expenditure.	40,812,433	47,172,222	53,070,653
Claims incurred	10,696,001	11,967,435	14,155,792
Increase in actuarial reserve	11,881,581	14,607,794	16,133,974
Taxes, licences and fees	96,869	113,634	151,596
Commissions	7,009,477	7,133,026	7,854,755
General expenses	6,694,172	8,404,755	9,070,597
Other	1,126,235	1,213,365	1,372,384
Dividends to members	2,695,021	2,976,584	3,619,031
Increase in provision for dividends to members	613,079	755,629	712,524
Analysis of Increase in Surplus—			
Excess of revenue over expenditure	3,529,829	2,820,144	3,131,117
Net capital gain on investments	86,014	87,248	36,733
Other credits to surplus (net)	82,211	85,535	281,842
Net increase in special reserves	-1,759,769	-958,714	-269,307
Increase in surplus	1,938,285	2,034,213	3,180,385
Foreign Societies¹			
Assets	52,906,594	55,482,457	59,016,179
Bonds	45,771,552	47,871,417	50,310,740
Stocks	334,040	464,750	577,785
Mortgage loans on real estate	1,472,865	1,350,869	2,121,033
Real estate			
Certificate loans and liens	2,623,076	2,832,371	3,044,439
Cash	1,791,091	2,062,798	2,023,143
Investment income, due and accrued	659,546	682,984	736,138
Outstanding premiums, contributions and dues	254,270	210,261	198,704
Other	154	7,007	4,197
Liabilities	43,769,029	46,254,544	48,365,891
Actuarial reserve	39,354,481	41,354,123	43,683,668
Outstanding claims	475,423	508,114	554,758
Other	3,939,125	4,392,307	4,127,465
Revenue	9,751,189	10,143,354	11,460,668
Premiums, contributions and dues	7,088,986	7,342,649	8,131,284
Investment income	2,303,665	2,393,765	2,770,840
Other	388,538	706,940	552,544
Expenditure	5,372,850	5,828,623	6,617,272
Claims incurred	3,554,448	3,791,696	3,845,952
Taxes, licences and fees	47,378	56,498	61,649
Commissions	569,707	592,104	553,551
General expenses	459,189	493,743	528,332
Other	215,839	297,437	965,606
Dividends to members	526,289	597,145	661,582

¹ All funds, business in Canada only.

Subsection 5.—Life Insurance Effectuated and in Force Outside Canada by Canadian Companies under Federal Registration

In this Subsection, there are given for the years 1963 and 1964 summary statistics of insurance effectuated and insurance in force at the end of the year in currencies other than Canadian dollars, as written by Canadian companies under federal registration. The data given are in terms of Canadian dollars, the conversions from the various foreign currencies having been made at the book rates of exchange used by the various companies.

Canadian life insurance companies operating under federal registration at Dec. 31, 1964 had life insurance in force amounting to \$18,075,931,516 in countries outside Canada. Insurance in force in currencies other than Canadian dollars amounted to \$18,050,167,500; the difference between these figures is presumably the net amount of business in countries outside Canada transacted in Canadian currency. The business in force in Canada of Canadian companies registered by the Federal Government amounted to \$43,209,488,534 at Dec. 31, 1964, and the total business on the books of these companies, in and out of

Canada, amounted to \$61,285,420,050. Thus, over 29 p.c. of the total business in force for Canadian companies registered by the Federal Government was in force in countries outside Canada. In connection with their business outside Canada, the Canadian life insurance companies registered by the Federal Government held, at the end of 1964, Commonwealth and foreign investments in the amount of \$3,462,399,958.

Approximately 70 p.c. of all business in force in currencies other than Canadian is in United States currency and 17 p.c. is in sterling. From a slightly different point of view, approximately 22 p.c. of this business in force is in currencies of Commonwealth countries other than Canada, and 78 p.c. in currencies of foreign countries.

11.—Life Insurance Effectuated and in Force for Canadian Companies (excluding Fraternal Societies) under Federal Registration, in Currencies other than Canadian Dollars, by Currency, 1963 and 1964.

Currency	1963		1964	
	Insurance Effectuated	Insurance in Force	Insurance Effectuated	Insurance in Force
	\$	\$	\$	\$
Commonwealth Currencies	573,973,460	3,667,037,811	644,588,634	4,054,438,708
Pounds—				
Sterling.....	419,841,021	2,860,585,759	476,073,299	3,147,811,111
Australia.....	—	3,060	24,100	27,160
British West Indies, Bahamas, Bermuda and Jamaica.....	40,236,958	199,977,328	50,657,789	238,132,904
Cyprus.....	3,526,176	12,855,308	676,272	11,093,774
Rhodesia.....	36,841,923	159,599,578	23,626,574	157,142,521
Dollars—				
British Honduras.....	—	540,799	—	471,032
British West Indies, British Guiana and Trinidad.....	69,084,428	333,783,911	89,301,478	406,109,127
Hong Kong.....	3,445,052	21,769,246	3,221,824	24,936,999
Malaysia.....	—	29,568,578	—	25,009,961
Rupees—				
Ceylon.....	—	25,455,481	—	23,506,940
India.....	—	3,703,586	—	3,733,161
Pakistan.....	—	596,812	—	500,128
Shillings—				
East Africa.....	997,902	18,598,365	1,007,298	15,963,890
Foreign Currencies	1,837,957,924	12,754,243,330	2,105,393,904	13,995,728,792
Bahts (Thailand).....	—	10,994	—	8,136
Bolivars (Venezuela).....	9,412,305	47,795,894	8,588,914	52,399,919
Colones (El Salvador).....	—	774,000	—	775,800
Colonos (Nicaragua).....	—	1,613	—	1,613
Dollars (United States of America).....	1,651,121,400	11,577,096,468	1,901,473,923	12,699,524,536
Escudos (Chile).....	—	12	—	—
Francs (Belgium).....	—	—	—	1,904
Francs (France).....	—	492	—	385
Francs (Switzerland).....	—	2,080	260,800	260,800
Guilderd (Netherlands).....	—	223,546	—	211,754
Guilderd (Netherlands Antilles).....	3,332,279	21,088,128	4,095,270	23,445,746
Kyats (Burma).....	—	45,482	—	31,814
Pesos (Argentina).....	—	1,345,125	—	1,207,535
Pesos (Colombia).....	—	5,920	—	5,920
Pesos (Cuba).....	87,000	110,042,535	—	94,897,351
Pesos (Dominican Republic).....	12,038,867	32,610,481	17,135,117	46,435,908
Pesos (Mexico).....	—	2,965,097	1,000	2,693,728
Pesos (Philippines).....	13,797,153	84,355,323	16,033,240	92,429,818
Pounds (Egypt).....	—	9,468,514	—	8,426,217
Pounds (Republic of Ireland).....	17,639,509	98,546,072	23,224,772	116,589,646
Pounds (Israel).....	13,012,556	38,688,060	20,321,267	43,532,385
Rand (South Africa).....	117,516,855	728,880,503	114,259,601	812,731,635
Rupiah (Indonesia).....	—	229,146	—	54,577
Soles (Peru).....	—	64,615	—	58,410
Yen (Japan).....	—	3,230	—	3,255
Totals	2,411,931,384	16,421,281,141	2,749,982,538	18,050,167,500

Section 2.—Fire and Casualty Insurance

At the end of 1964 there were 272 companies registered by the Federal Government to transact fire insurance in Canada (86 Canadian, 74 British and 112 foreign). Of these companies, 265 (80 Canadian, 74 British and 111 foreign) were also registered to transact casualty insurance. In addition, 102 companies were registered by the Federal Government to transact casualty insurance but not fire insurance (26 Canadian, 7 British and 69 foreign). Of the companies registered to transact fire and/or casualty insurance, 79 were also registered to transact life insurance; 14 of these were registered for fire, life and casualty insurance and 65 for life and casualty but not fire insurance. It should be noted also that, in addition to the companies registered by the Federal Government to transact casualty insurance, there were 28 registered fraternal benefit societies transacting accident and sickness insurance, of which 25 also transacted life insurance.

The operations analysed in the tables of this Section, with the exception of Table 12, include only those companies under federal registration. As shown in Table 12, some fire and casualty insurance is transacted in Canada by companies that are provincially licensed only. These companies generally confine their operations to the province of incorporation and many of them are mutual organizations transacting only fire insurance on a county, municipal or parish basis. The table relates to insurance companies only; no data are included for fraternal benefit societies.

12.—Fire and Casualty Insurance Transacted in Canada, 1963 and 1964

Item	1963		1964	
	Net Premiums Written	Net Claims Incurred	Net Premiums Written	Net Claims Incurred
	\$	\$	\$	\$
Fire Insurance				
Federally registered companies ¹	211,639,863	134,306,829	221,697,952	120,340,684
Provincial licensees.....	32,822,077	19,133,580	35,044,358	20,199,848
In province by which incorporated.....	29,801,767	16,905,711	31,794,472	17,893,125
Outside province by which incorporated.....	3,020,310	2,227,869	3,249,886	2,306,723
Lloyds, London.....	7,519,346	6,754,478	8,795,046	5,096,046
Totals, Fire¹.....	251,981,286	160,194,887	265,537,356	145,636,578
Casualty Insurance				
Federally registered companies ¹	702,055,298	476,469,032	816,794,229	545,401,794
Provincial licensees.....	75,669,860	49,880,125	84,687,688	56,081,020
In province by which incorporated.....	66,628,522	43,669,458	74,056,133	48,915,407
Outside province by which incorporated.....	9,041,338	6,210,667	10,631,555	7,165,613
Lloyds, London.....	28,602,199	27,894,319	33,436,227	28,497,863
Totals, Casualty¹.....	806,327,357	554,243,476	934,918,144	629,980,677
Totals, Fire and Casualty¹.....	1,058,308,643	714,438,363	1,200,455,500	775,617,255

¹ Registered or licensed reinsurance deducted from all companies.

Subsection 1.—Fire Insurance Transacted in Canada by Companies under Federal Registration

Net premiums written and net claims incurred during each year from 1955 to 1964 are given in Table 13 and the figures for 1964 are classified by province and nationality of company in Table 14.

13.—Fire Insurance Transacted in Canada by Companies under Federal Registration, 1955-64

(Less all reinsurance for Canadian companies and registered or licensed reinsurance only for British and foreign companies)

Year	Net Premiums Written during Year	Net Claims Incurred during Year	Year	Net Premiums Written during Year	Net Claims Incurred during Year
	\$	\$		\$	\$
1955.....	146,444,845	77,836,245	1960.....	200,735,958	100,501,460
1956.....	155,506,787	86,088,850	1961.....	200,859,825	96,343,611
1957.....	156,246,117	109,757,161	1962.....	200,768,495	104,472,605
1958.....	177,364,450	88,151,837	1963.....	196,915,780	125,252,467
1959.....	196,702,991	96,054,754	1964.....	205,276,365	110,502,299

14.—Fire Insurance in Canada classified by Province and by Nationality of Company under Federal Registration, 1964

(Registered or licensed reinsurance deducted)

Province or Territory	Canadian Companies		British Companies		Foreign Companies	
	Net Premiums Written	Net Claims Incurred	Net Premiums Written	Net Claims Incurred	Net Premiums Written	Net Claims Incurred
	\$	\$	\$	\$	\$	\$
Newfoundland.....	977,940	444,726	1,406,450	576,960	651,840	522,378
Prince Edward Island.....	378,116	130,756	483,193	123,016	172,065	63,819
Nova Scotia.....	3,157,246	1,327,652	3,141,366	1,685,053	1,720,637	764,027
New Brunswick.....	2,462,720	1,284,203	2,577,657	1,242,996	2,040,419	1,155,773
Quebec.....	23,536,655	12,915,504	21,862,307	11,715,706	24,209,649	12,662,876
Ontario.....	31,666,210	16,899,681	20,906,222	10,825,878	28,915,236	17,657,507
Manitoba.....	4,836,398	2,300,427	2,397,032	1,230,347	2,405,370	1,315,581
Saskatchewan.....	3,637,966	1,546,098	1,364,238	560,129	1,561,198	1,060,187
Alberta.....	5,637,528	2,799,858	3,718,662	2,063,045	3,865,021	2,278,410
British Columbia.....	6,954,138	3,401,631	6,415,074	4,066,300	8,154,101	5,289,378
Yukon and Northwest Territories...	154,394	113,168	256,907	256,034	73,997	61,580
Canada.....	83,399,311	43,163,704	64,529,108	34,345,464	73,769,533	42,831,516

Subsection 2.—Fire Losses

The information in Tables 15 to 17, which deals with the loss of property and life caused by fire, has been summarized from the annual report *Fire Losses in Canada* prepared by the Dominion Fire Commissioner, Department of Public Works. Federal losses not included in these figures in 1963 amounted to \$6,497,474 from 2,053 fires; average federal losses for the period 1954-63 amounted to \$5,094,070 from an annual average of 2,238 fires.

15.—Statistics of Fire Losses, 1954-63

NOTE.—Figures for 1926-46 are given in the 1947 Year Book, p. 1078, and those for 1947-53 in the 1960 edition, p. 1169. Figures from 1922 may be obtained from the Dominion Fire Commissioner, Department of Public Works.

Year	Fires Reported	Property Loss ¹	Loss per Capita	Deaths by Fire	Year	Fires Reported	Property Loss ¹	Loss per Capita	Deaths by Fire
	No.	\$	\$	No.		No.	\$	\$	No.
1954.....	68,638	91,440,478	5.98	485	1959.....	84,241	124,532,238	7.12	560
1955 ²	76,096	102,767,776	6.55	573	1960.....	79,611	129,327,288	7.24	566
1956.....	80,746	106,772,153	6.64	601	1961.....	83,706	128,262,047	7.03	556
1957.....	82,088	133,492,277	8.04	638	1962.....	85,585	140,144,643	7.55	626
1958.....	86,919	120,258,696	7.04	532	1963.....	83,027	154,051,629	8.15	553

¹ Excludes forest fires and Federal Government property losses.

² Newfoundland included from 1955.

The provincial property losses for 1960-63 given in Table 16 include both insured and uninsured losses.

16.—Fire Losses, by Province, 1960-63

Province or Territory	1960	1961	1962	1963		
	Property Loss ¹			Fires Reported	Property Loss ¹	Loss per Capita
	\$	\$	\$	No.	\$	\$
Newfoundland.....	1,421,354	5,535,260	1,026,077	562	3,368,293	7.00
Prince Edward Island.....	740,780	806,429	901,550	457	859,773	8.04
Nova Scotia.....	3,661,464	3,093,709	3,863,201	1,900	3,332,053	4.41
New Brunswick.....	4,766,056	3,667,612	3,155,172	1,637	4,529,053	7.38
Quebec.....	40,602,510	41,841,330	53,197,135	33,490	53,837,155	9.85
Ontario.....	42,163,599	40,773,492	43,509,265	25,652	52,421,532	8.13
Manitoba.....	6,080,983	4,884,668	6,184,097	3,829	6,806,691	7.16
Saskatchewan.....	3,132,065	4,741,201	2,799,614	2,237	4,701,317	5.04
Alberta.....	7,630,695	8,674,795	10,756,397	6,135	9,813,646	6.98
British Columbia.....	18,290,383	13,494,934	14,346,870	6,915	13,792,731	8.14
Yukon and Northwest Territories...	837,399	748,617	405,265	213	589,385	15.11
Canada.....	129,327,288	128,262,047	140,144,643	83,027	154,051,629	8.15

¹ Excludes forest fires and Federal Government property losses.

17.—Fire Losses, by Type of Property and Cause of Fire, 1961-63

Type of Property and Reported Cause of Fire	1961		1962		1963	
	Fires Reported	Property Loss ^{1,2}	Fires Reported	Property Loss ¹	Fires Reported	Property Loss ¹
	No.	\$	No.	\$	No.	\$
Type of Property						
Residential.....	62,066	33,108,236	62,353	39,414,601	50,040	39,413,018
Mercantile.....	6,823	42,119,107	7,077	44,406,083	16,470	52,487,306
Farm.....	6,766	13,176,606	6,413	14,331,437	6,088	14,366,579
Manufacturing.....	1,664	18,338,086	1,692	19,292,093	2,042	18,871,320
Institutional and assembly.....	1,232	7,204,244	1,148	8,494,594	1,242	10,459,249
Miscellaneous.....	5,120	14,315,768	6,902	14,205,835	7,145	18,454,157
Totals.....	83,706	128,262,047	85,585	140,144,643	83,027	154,051,629
Reported Cause						
Smokers' carelessness.....	32,659	6,693,799	31,637	7,448,721	28,500	9,359,174
Stoves, furnaces, boilers and smoke pipes.....	5,950	7,492,539	6,171	10,564,570	5,559	10,706,095
Electrical wiring and appliances.....	8,527	15,276,056	9,977	19,259,429	8,586	18,918,304
Matches.....	2,865	2,172,011	2,174	3,301,857	2,322	4,021,211
Defective and overheated chimneys and flues.....	2,833	2,958,347	2,562	2,929,994	2,240	2,790,044
Hot ashes, coals and open fires.....	2,022	1,882,717	1,449	1,353,921	1,309	1,250,543
Petroleum and its products.....	1,337	2,963,510	1,544	3,502,520	1,633	4,277,143
Lights, other than electric.....	1,430	1,203,066	1,739	2,403,166	1,518	3,842,748
Lightning.....	3,199	2,259,427	3,297	2,429,957	3,602	1,732,352
Sparks on roofs.....	509	540,627	314	392,756	255	350,180
Exposure fires.....	685	1,891,142	448	922,316	527	1,026,679
Spontaneous ignition.....	345	1,015,416	371	1,599,714	393	3,156,934
Incendiarism.....	558	3,168,047	720	3,106,214	782	4,747,611
Miscellaneous known causes (explosions, fireworks, friction, hot grease or metal, steam or hot water pipes, etc.).....	7,788	9,852,449	9,731	9,829,122	10,727	13,458,092
Unknown.....	12,999	68,892,894	13,451	71,100,386	15,074	74,414,619

¹ Excludes forest fires and Federal Government property losses.
or Newfoundland not complete.

² Addition not accurate; breakdown

Subsection 3.—Casualty Insurance Transacted in Canada by Companies under Federal Registration

The various classes of casualty insurance are shown in Table 18. These figures relate only to companies registered by the Federal Government.

18.—Net Casualty Premiums Written, Premiums Earned and Claims Incurred in Canada, 1964

NOTE.—Excluding marine insurance for which a certificate of registration is not required. Less all reinsurance for Canadian companies and registered or licensed reinsurance only for British and foreign companies.

Class of Insurance	Premiums Written				Premiums Earned	Claims Incurred
	Canadian Companies	British Companies	Foreign Companies	Total	All Companies	All Companies
	\$	\$	\$	\$	\$	\$
Aircraft.....	412,343	2,960,704	1,755,588	5,128,635	5,113,639	4,240,526
Automobile.....	199,640,643	87,703,390	112,246,525	399,590,558	370,991,888	280,694,775
Boiler.....	3,251,946	1,119,908	1,622,144	5,993,298	5,948,257	1,178,850
Machinery.....	1,607,788	389,203	1,125,600	3,122,591	2,914,585	1,660,932
Credit.....	214,339	—	638,667	853,006	939,069	236,567
Earthquake.....	27,004	29,013	75,422	132,339	89,038	—
Explosion.....	—	—	142	142	222	36
Forgery.....	75,867	12,140	38,150	126,157	139,749	26,652

**18.—Net Casualty Premiums Written, Premiums Earned and Claims Incurred
in Canada, 1964—concluded**

Class of Insurance	Premiums Written				Premiums Earned	Claims Incurred
	Canadian Companies	British Companies	Foreign Companies	Total	All Companies	All Companies
	\$	\$	\$	\$	\$	\$
Guarantee—						
Fidelity.....	1,952,018	1,002,286	2,655,320	5,609,624	4,831,189	2,980,366
Surety.....	5,466,721	1,036,164	6,006,698	12,509,583	10,964,536	1,800,531
Hail.....	183,831	886,060	3,923,821	4,993,712	4,935,432	2,539,016
Inland transportation.....	1,364,721	1,843,521	4,037,502	7,245,744	6,963,115	4,530,949
Liability—						
Public liability.....	15,726,694	11,698,827	14,373,825	41,799,346	39,477,737	22,052,617
Employers' liability.....	2,654,504	2,640,970	1,484,857	6,780,331	6,708,845	3,592,480
Livestock.....	271,595	180,933	106,945	559,473	502,623	330,925
Mortgage.....	386,075	—	—	386,075	38,607	—
Personal accident and sickness.....	112,054,545	6,504,536	120,568,405	239,127,486	235,708,149	172,114,994
Personal property.....	17,484,881	15,067,630	21,541,520	54,094,031	50,896,099	29,532,720
Plate glass.....	1,165,926	797,745	772,529	2,736,200	2,821,947	1,600,381
Real property.....	558,750	593,476	820,480	1,972,706	2,080,174	990,480
Sprinkler leakage.....	63	337	—	454	398	314
Theft.....	3,087,952	2,347,221	3,089,275	8,524,448	8,261,448	4,054,840
Title.....	—	—	69,720	69,720	63,796	—
Water damage.....	—	—	1,709	1,709	679	—
Weather.....	—	—	17,886	17,886	17,893	18,374
Windstorm.....	76,773	48	15,518	92,339	112,460	42,155
Totals.....	367,664,979	136,814,312	296,988,302	801,467,593	760,521,574	534,219,390

**Subsection 4.—Finances of Companies Transacting Fire and Casualty
Insurance under Federal Registration**

The financial statistics of Tables 19 and 20 relate to fire and casualty insurance transacted by companies under federal registration. The figures for British and foreign companies apply to their assets, liabilities and operations in Canada only. On the other hand, the assets and liabilities, revenue and expenditure of Canadian companies are given for total business, including business arising out of Canada as well as in Canada.

**19.—Total Assets and Liabilities for Fire and Casualty Insurance of Canadian Companies
and Assets and Liabilities in Canada for Fire and Casualty Insurance of British and
Foreign Companies under Federal Registration, 1962-64.**

Assets and Liabilities	1962	1963	1964
Canadian Companies ¹	\$	\$	\$
Total Assets².....	629,662,197	670,134,567	769,673,574
Bonds.....	389,758,505	407,598,291	463,897,562
Stocks.....	79,624,564	85,617,906	100,881,261
Mortgage loans and agreements of sale.....	21,111,018	25,109,760	29,361,494
Real estate.....	17,734,064	17,667,485	18,653,012
Cash.....	31,510,035	33,532,050	37,351,588
Investment income, due and accrued.....	5,001,493	5,352,097	6,157,609
Amounts due from agents and uncollected premiums.....	47,608,149	53,937,900	68,265,253
Other assets.....	37,314,369	42,616,082	45,712,448
Adjustment for excess of book value over market value.....	...	-1,297,004	-606,653
Total Liabilities.....	422,311,227	467,485,957	548,131,659
Reserve for unearned premiums.....	167,530,968	174,334,754	203,254,897
Additional policy reserves.....	11,115,519	5,016,907	6,454,497
Provision for unpaid claims.....	145,760,446	168,480,924	207,542,187
Investment, contingency or general reserves.....	29,014,448	30,966,302	32,801,075
Other liabilities.....	78,899,846	88,687,070	98,079,003
Capital stock paid.....	43,139,460	44,375,673	48,788,196
Amount transferred from other funds.....	7,797,462	8,306,753	12,060,250
Surplus.....	156,414,048	149,966,184	160,693,469

¹ Business in and out of Canada.

² At book values. The amount, if any, by which the total book value of bonds, stocks and real estate exceeds the total market value is shown separately as a deduction to assets; in 1962, the deduction was not shown separately but was applied to the asset item affected.

19.—Total Assets and Liabilities for Fire and Casualty Insurance of Canadian Companies and Assets and Liabilities in Canada for Fire and Casualty Insurance of British and Foreign Companies under Federal Registration, 1962-64—concluded.

Assets and Liabilities	1962	1963	1964
	\$	\$	\$
British Companies¹			
Assets in Canada²	337,974,367	339,418,407	354,827,288
Bonds.....	259,567,700	258,982,825	256,569,395
Stocks.....	19,173,225	22,808,165	30,537,041
Mortgage loans and agreements of sale.....	2,537,268	2,301,573	2,129,368
Real estate.....	4,138,742	3,988,247	4,373,858
Cash.....	12,362,711	10,730,119	12,389,194
Investment income, due and accrued.....	2,563,701	2,579,229	2,616,060
Amounts due from agents and uncollected premiums.....	30,413,022	30,153,580	34,711,199
Other assets.....	7,217,998	7,874,669	11,501,173
Liabilities in Canada	204,865,574	221,486,435	241,327,983
Reserve for unearned premiums.....	107,229,340	106,632,996	111,801,728
Additional policy reserves.....	1,886,752	978,142	1,169,676
Provision for unpaid claims.....	80,887,140	96,639,173	106,316,358
Other liabilities.....	14,862,342	17,236,124	22,040,221
Excess of assets over liabilities in Canada.....	133,108,793	117,931,972	113,499,305
Foreign Companies¹			
Assets in Canada²	494,190,646	521,527,193	532,724,871
Bonds.....	396,579,883	415,317,758	422,572,234
Stocks.....	14,367,980	16,977,526	18,273,361
Mortgage loans and agreements of sale.....	50,214	49,739	70,973
Real estate.....	4,338,956	4,436,436	4,734,626
Cash.....	27,861,447	28,273,412	28,731,906
Investment income, due and accrued.....	4,686,658	4,934,524	5,182,547
Amounts due from agents and uncollected premiums.....	33,957,410	35,810,861	38,265,609
Other assets.....	12,348,098	15,726,937	14,893,615
Liabilities in Canada	310,520,169	342,939,576	366,353,590
Reserve for unearned premiums.....	154,243,652	166,808,432	173,536,362
Additional policy reserves.....	16,163,517	7,601,327	8,246,507
Provision for unpaid claims.....	110,437,647	134,248,709	147,522,090
Other liabilities.....	29,675,353	34,281,108	37,048,631
Excess of assets over liabilities in Canada.....	183,670,477	178,587,617	166,371,281

¹ Business in Canada only.² At market values.

20.—Underwriting Account and Analysis of Surplus of Canadian Companies and Underwriting Account and Investment Income in Canada of British and Foreign Companies Transacting Fire and Casualty Insurance under Federal Registration, 1963 and 1964.

Item	1963	1964
	\$	\$
Canadian Companies (In and Out of Canada)		
Underwriting Account—		
Underwriting income earned.....	413,630,323	478,282,668
Less disbursements:		
Claims incurred.....	286,116,541	330,744,557
Commissions and general expenses.....	140,813,107	157,868,046
Premium taxes, licences and fees.....	9,954,154	11,411,150
Dividends to policyholders.....	3,211,845	4,965,477
Underwriting gain or loss (—).....	—26,465,824	—26,706,562
Analysis of Increase in Surplus—		
Underwriting gain or loss (—).....	—26,465,824	—26,706,562
Investment income.....	24,288,226	27,658,070
Other investment account items.....	2,794,000	5,321,858
Income taxes.....	—810,819	—1,859,443
Dividends to shareholders.....	—3,866,645	—3,407,122
Other surplus items.....	—4,688,528	—1,044,811
Premium on capital stock or surplus paid in.....	2,898,254	11,849,177
Increase in surplus.....	—5,850,836	11,811,167

20.—Underwriting Account and Analysis of Surplus of Canadian Companies and Underwriting Account and Investment Income in Canada of British and Foreign Companies Transacting Fire and Casualty Insurance under Federal Registration, 1963 and 1964—concluded.

Item	1963	1964
	\$	\$
British Companies		
Underwriting Account in Canada—		
Underwriting income earned.....	183,485,552	196,047,928
Less disbursements:		
Claims incurred.....	126,689,766	124,428,836
Commissions and general expenses.....	76,847,284	82,490,780
Premium taxes, licences and fees.....	4,478,818	4,784,820
Dividends to policyholders.....	13,192	1,800
Underwriting gain or loss (—).....	—24,543,508	—15,658,308
Income taxes.....	—271,670	64,605
Investment income.....	10,845,854	10,943,710
Foreign Companies		
Underwriting Account in Canada—		
Underwriting income earned.....	335,016,874	363,692,723
Less disbursements:		
Claims incurred.....	224,328,325	241,573,050
Commissions and general expenses.....	115,056,453	119,436,460
Premium taxes, licences and fees.....	8,080,064	8,822,383
Dividends to policyholders.....	4,833,058	6,806,665
Underwriting gain or loss (—).....	—17,281,026	—12,945,835
Income taxes.....	157,338	1,250,689
Investment income.....	19,494,449	20,161,637

Section 3.—Government Insurance

Federal Government Insurance

For more than fifty years the Federal Government has operated an annuity service, instituted to assist Canadians to make provision for old age; this service is described below. In addition, various insurance schemes have been adopted in recent years by the Federal Government or co-operatively by the federal and provincial governments. Information on unemployment insurance, health insurance, veterans insurance, export credits insurance, etc., will be found in the appropriate Chapters on Labour, Health and Welfare, Foreign Trade, etc.

Government Annuities.*—The Government Annuities Act (RSC 1952, c. 132) was passed in 1908 and is administered by the Minister of Labour.

A Canadian Government annuity is a fixed yearly income purchased from and paid by the Government of Canada. The annuity is payable in monthly instalments for life, or for life and guaranteed for a period of years. The minimum annuity is \$10 and the maximum \$1,200 a year or the actuarial equivalent if the annuity is to reduce by the amount of payments under the Old Age Security Act. Annuity contracts may be deferred or immediate. Deferred annuities are purchased by periodic or single premiums. Immediate annuity contracts provide immediate income. Annuities may be arranged to reduce by \$75 a month when payments under the Old Age Security Act begin.

The property and interest of the annuitant are neither transferable nor attachable. In the event of the death of the annuitant before a deferred annuity vests, all money paid is refunded with interest. Provision is made in the Act for group annuity contracts whereby employers may contract for the purchase of annuities on behalf of their employees, or associations on behalf of their members, the purchase money being derived partly from wages and partly from employer contributions or entirely from employer contributions.

* Revised in the Government Annuities Branch, Department of Labour, Ottawa.

Annuities arising from individual contracts may be taxable in either of two ways: (1) if registered under Sect. 79B of the Income Tax Act for tax exemption on premiums, the annuity is fully taxable, or (2) if not registered, the annuity is taxable on the interest portion only. Annuities arising from registered pension plans are fully taxable but the employee and the employer are entitled to tax exemption year by year on their annual contributions to the pension plan.

From Sept. 1, 1908, the date of the inception of the system, to Mar. 31, 1965, the total number of annuity contracts and certificates issued, excluding replacements, was 537,041. On the latter date, 93,342 annuities were being paid amounting to \$53,189,000 annually and 295,672 deferred annuities were being purchased. The net total amount of purchase money received up to Mar. 31, 1965 was \$1,408,936,000. At that date there were in force 1,312 pension plans underwritten by government annuities, providing 205,332 employees with portable pensions; approximately 28,000 retired employees were receiving pensions. The number of certificates issued during the year was 1,783 compared with 2,470 in 1963-64.

21.—Individual Annuity Contracts and Certificates Issued and Net Receipts, Years Ended Mar. 31, 1961-65, with Cumulative Totals for 1909-65

Year Ended Mar. 31—	Individual Contracts Issued	Group Certificates Issued	Total Contracts and Certificates Issued	Net Receipts
	No.	No.	No.	\$'000
1909-60.....	191,831	299,513	491,344	1,221,836
1961.....	4,353	10,007	14,360	48,523
1962.....	4,117	7,480	11,597	43,097
1963.....	4,296	3,687	7,983	37,003
1964.....	3,687	2,470	6,157	28,894
1965.....	3,817	1,783	5,600	29,583
Totals, 1909-65.....	212,101	321,940	537,041	1,408,936

22.—Government Annuity Account Statements, Years Ended Mar. 31, 1961-65

Item	1961	1962	1963	1964	1965
	\$	\$	\$	\$	\$
Assets					
Fund at beginning of fiscal year.....	1,156,867,225	1,199,122,929	1,235,303,906	1,264,436,143	1,284,261,927
Receipts during the year, less payments.....	42,255,704	36,180,977	29,132,237	19,825,784	18,874,956
Fund at end of fiscal year.....	1,199,122,929	1,235,303,906	1,264,436,143	1,284,261,927	1,303,136,883
Liabilities					
Value of outstanding contracts.....	1,199,122,929	1,235,303,906	1,264,436,143	1,284,261,927	1,303,136,883
Receipts					
Immediate annuities.....	2,813,068	2,465,933	1,468,984	1,054,824	4,531,933
Deferred annuities.....	46,963,783	41,007,852	36,063,164	28,358,312	25,631,120
Interest on fund.....	44,584,055	46,010,743	47,414,303	48,376,632	49,180,085
Totals, Receipts.....	93,460,906	89,484,528	84,946,451	77,789,768	79,342,538

22.—Government Annuity Account Statements, Years Ended Mar. 31, 1961-65—concluded

Item	1961	1962	1963	1964	1965
	\$	\$	\$	\$	\$
Payments					
Payments under vested annuity contracts.....	44,985,028	46,927,513	48,854,763	50,556,551	52,870,629
Return of premiums with interest.....	4,610,426	5,189,647	5,538,438	5,626,064	5,982,052
Unclaimed annuities transferred to Consolidated Revenue Fund, net.....	939,012	872,639	961,182	875,581	876,543
Surplus transferred to Consolidated Revenue Fund.....	36,311	21,179	42,531	27,345	42,979
	634,425	292,573	417,300	878,443	695,379
Totals, Payments.....	51,205,202	53,303,551	55,814,214	57,963,984	60,467,582

23.—Numbers and Values of Annuity Contracts, as at Mar. 31, 1964 and 1965

Classification	1964			1965		
	Contracts	Amount of Annuities	Value at Mar. 31 of Contracts in Force	Contracts	Amount of Annuities	Value at Mar. 31 of Contracts in Force
	No.	\$	\$	No.	\$	\$
Vested ordinary.....	44,490	20,175,573	160,951,785	45,884	21,031,124	166,120,071
Vested guaranteed.....	34,770	19,948,381	213,827,284	35,648	20,494,807	218,099,866
Vested last survivor.....	3,574	1,901,790	22,864,648	3,497	1,880,943	22,199,191
Vested reducing at age 70....	7,773	8,896,761	58,946,376	8,313	9,781,761	63,164,829
Deferred.....	298,338	1	827,671,834	295,672	1	833,552,926
Totals.....	388,945	50,922,505	1,284,261,927	389,014	53,188,635	1,303,136,883

1 Undetermined.

Provincial Government Insurance

Saskatchewan.—The Saskatchewan Government Insurance Office, a Crown corporation established by the Saskatchewan Government Insurance Act, 1944, commenced business in May 1945. It deals in all types of insurance other than sickness and life. The aim of the legislation is to provide residents of the province with low-cost insurance designed for their particular needs. Rates are based on loss experience in Saskatchewan only and the surplus is invested, to the extent possible, within the province. Premium income for 1964 amounted to \$9,996,427 and earned surplus to \$376,925. The total amount made available to the Government of Saskatchewan from 1945 to Dec. 31, 1964, was \$4,986,002. Assets at the latter date were \$20,129,885, of which \$13,700,000 were invested in bonds and debentures issued by Saskatchewan schools, municipalities, hospitals and the province. Independent insurance agents numbering 588 sell government insurance throughout the province.

The Automobile Accident Insurance Act, which became effective Apr. 1, 1946, is administered by the Saskatchewan Government Insurance Office. It establishes a compulsory automatic insurance plan designed to provide a reasonable minimum of compensation for losses arising from motor vehicle accidents regardless of fault. It also provides public liability insurance, with an inclusive limit of \$35,000 for bodily injury and property damage, as well as comprehensive and collision coverage subject to a \$200 deductible for private passenger cars. Rates vary from \$4 a year for trucks to \$53 for late-model private passenger cars, and also vary for other types of motor vehicles depending on size and usage. From the inception of the Act in 1946 to Dec. 31, 1964, more than \$81,000,000 was paid in claims.

The Saskatchewan Government Insurance Office, under contract with the Saskatchewan Department of Natural Resources, offers insurance to farmers covering damage to unharvested crops by certain wildlife such as ducks, geese, sandhill cranes, deer, elk, bear and antelope.

Information regarding the operation of the Saskatchewan Government Insurance Office or the Automobile Accident Insurance Act may be obtained from the Office Librarian, Saskatchewan Government Insurance Office, Regina, Sask.

Alberta.—Provincial government insurance in Alberta, coming within the purview of the Alberta Insurance Act, relates (1) to the Alberta General Insurance Company, in which the entire business of the fire branch of the Alberta Government Insurance Office was vested by the Legislature on Mar. 31, 1948, and (2) to the Life Insurance Company of Alberta, which was constituted on the same date to take over the life branch of the Alberta Government Insurance Office. Each company is administered by a separate board of directors. The Lieutenant-Governor in Council appoints the members to the respective boards but the charter of the Life Insurance Company of Alberta provides for the election of two policyholder directors. Although both companies are Crown corporations, they are not entitled to the usual immunities of the Crown, since they may sue and be sued in any court of competent jurisdiction.

A variety of agencies in Alberta offer forms of prepaid protection corresponding to insurance but the nature of the enabling legislation governing these plans emphasizes the fact that they do not constitute insurance. Because such exemptions are specifically provided by the insurance laws of the province, reference to these plans is necessary only to make it clear that they do not come within the scope of the Alberta Insurance Act. It should be noted that the Alberta Hail Insurance Act is administered by the Provincial Treasurer but none of the provisions of the Alberta Insurance Act apply to the Alberta Hail Insurance Board.

Further information on provincial insurance matters may be obtained from the Superintendent of Insurance, Department of the Provincial Secretary, Edmonton, Alta.

Section 4.—Pension Plans

Very few pension plans in Canada have been in existence for more than 25 years and most of the older plans were installed by governments and financial institutions, such as banks. Employers in industry began showing an interest in pension plans for their employees shortly before World War II and from that time on there was a rapid increase in the rate at which plans were introduced.

Up to 1948 the majority of employers made arrangements with either the Annuities Branch of the Department of Labour (see pp. 1097-1099) or an insurance company for the underwriting of their plans. Then began the use of the facilities of corporate trustees (trust companies) to handle pension moneys, and by 1953 the amount of funds under control of such trustee plans had become a significant factor in the capital market and a growing form of savings. Trustee pension funds are also managed by individual trustees appointed by the employer or through a Pension Fund Society, which is a body incorporated under federal or provincial pension fund societies Acts, companies Acts, etc.

Table 24 shows the distribution of pension business for the years 1960-64.

24.—Distribution of Pension Business between Trusteed Funds, Life Insurance Company Annuities and Government Annuities, 1960-64

Item and Year		Trusteed Pension Plans	Life Insurance Group Annuities	Federal Government Group Annuities
Plans—				
1960.....	No.	1,140	6,564	1,556
1961.....	"	1,363	7,305	1,513
1962.....	"	1,547	8,276	1,437
1963.....	"	1,805 ^r	9,276	1,365
1964.....	"	2,119	10,048	1,312
Plan Members—				
1960.....	No.	1,004,624 ^r	469,339	185,000
1961.....	"	1,080,646 ^r	501,060	174,000
1962.....	"	1,130,521 ^r	536,886	161,090
1963.....	"	1,257,434 ^r	560,539	155,586
1964.....	"	1,336,542	570,925	149,026
Contributions—				
1960.....	\$'000,000	393	146	30
1961.....	"	436	157	25
1962.....	"	472	172	20
1963.....	"	541 ^r	178	13
1964.....	"	597	207	10
Assets (book value)—				
1960.....	\$'000,000	3,616	1,208	600
1961.....	"	4,074	1,397	610
1962.....	"	4,573	1,606	625
1963.....	"	5,175 ^r	1,818	623
1964.....	"	5,820	2,049	615

Pension trust funds derive their income from employer and employee contributions, investment income and profit on the sale of securities. Expenditures arise from pension payments, pensions purchased from an underwriter on retirement or separation, cash withdrawals on death or separation, administrative costs and losses on the sale of securities. The funds are invested in federal, provincial, municipal and corporate bonds, stocks, mortgages, real estate and lease-backs. In recent years corporate trustees have introduced the "pooled" or "classified" type of fund, which enables small plans to have their assets combined so that each fund participates in the diversity, security and yield previously available only to the much larger single funds. The trustees of a fund, whether corporate or individuals, may also purchase mutual funds.

Table 25 shows the various types of trusteed funds and the income, expenditures and assets of the funds in 1962-64.

25.—Trusteed Pension Plans, Income, Expenditures and Assets, 1962-64

Item		1962	1963	1964
Trusteed plans.....				
Funded Trusts—	No.	1,547	1,805 ^r	2,119
(a) Corporate trustees.....	"	1,256 ^r	1,437	1,732
(b) Individual trustees.....	"	230	251 ^r	321
(c) Combinations of (a) and (b) and other.....	"	23 ^r	29 ^r	29
Pension fund societies.....	"	38	38	37
Pooled funds.....	"	883 ^r	1,110 ^r	1,318
Mutual funds.....	"	38 ^r	58 ^r	90
Contributory funds.....	"	1,144	1,340	1,594
Non-contributory funds.....	"	403	465 ^r	525
Non-retired employees covered.....	'000	1,131 ^r	1,257 ^r	1,337

25.—Trusteed Pension Plans, Income, Expenditures and Assets, 1962-64—concluded

Item	1962	1963	1964
Income—			
Total contributions..... \$'000,000	472	541 ^r	597
Employer..... "	271	317 ^r	348
Employee..... "	201	224 ^r	249
Investment..... "	206	237	273
Net profit on sale of securities..... "	6	9	9
Other..... "	3	5 ^r	3
Totals, Income..... \$'000,000	687	792 ^r	882
Expenditures—			
Pension payments out of funds..... \$'000,000	135	151	170
Cost of pensions purchased..... "	6	4	8
Cash withdrawals..... "	42	47	54
Administration costs..... "	2	3	4
Net loss on sale of securities..... "	6	3	4
Other expenditures..... "	2	3	8
Totals, Expenditures..... \$'000,000	193	211	248
Assets (book value)—			
Investment in pooled funds..... \$'000,000	173 ^r	239 ^r	324
Investment in mutual funds..... "	44 ^r	49 ^r	58
Bonds..... \$'000,000	3,292	3,618 ^r	3,908
Bonds of, or guaranteed by, Government of Canada..... "	609	682 ^r	651
Bonds of, or guaranteed by, provincial governments..... "	1,482	1,674 ^r	1,868
Bonds of Canadian municipal governments, school boards, etc..... "	467	648	593
Other Canadian..... "	731	813 ^r	893
Non-Canadian..... "	3	3	3
Stocks..... \$'000,000	499 ^r	614 ^r	779
Canadian, common..... "	404 ^r	499 ^r	627
Canadian, preferred..... "	18	20	19
Non-Canadian, common..... "	77	96 ^r	133
Mortgages..... \$'000,000	417	482 ^r	545
Insured residential (NHA)..... "	278	324 ^r	353
Other..... "	139	158 ^r	192
Real estate and lease-backs..... \$'000,000	34	40	42
Accrued interest..... "	42	45 ^r	50
Accounts receivable..... "	24	27	31
Cash-currency, bank and other deposits..... "	47	61	79
Other assets..... "	1	—	4
Totals, Assets..... \$'000,000	4,573	5,175 ^r	5,820

CHAPTER XXVI.—DEFENCE

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found on p. viii of this volume.

PART 1.—THE ARMED SERVICES AND DEFENCE RESEARCH*

Section 1.—The Department of National Defence

The control and management of all matters relating to national defence, the Canadian Forces and the Defence Research Board are the responsibility of the Minister and Associate Minister of National Defence; the duties and functions relating to national survival have also been assigned to the Department of National Defence with the Canadian Army undertaking the major role.

Effective Aug. 1, 1964, the Headquarters of the Royal Canadian Navy, the Canadian Army and the Royal Canadian Air Force were integrated to form a single Canadian Forces Headquarters (CFHQ) under a single Chief of Defence Staff. The role of CFHQ is to provide military advice to the Minister of National Defence and to control and administer the Canadian Forces.

CFHQ is organized in four functional Branches headed by the Vice-Chief of Defence Staff, the Chief of Personnel, the Chief of Technical Services and the Comptroller General, who are responsible for advising and supporting the Chief of Defence Staff in matters relating to their assigned spheres of activity. The Royal Canadian Navy, Canadian Army and Royal Canadian Air Force retain their individual identities. The Defence Research Board conducts research relating to the defence of Canada and also undertakes the development of or improvements in materiel.

The civilian administration of the Department is organized under the Deputy Minister and is constituted on a functional basis. The Deputy Minister, assisted by an Associate Deputy Minister, maintains a continuing review and control over the financial aspects of operational policy, logistics, and personnel and administration. Three Assistant

* Prepared (November 1965) in the Office of the Deputy Minister, Department of National Defence, Ottawa.

Deputy Ministers each administers a division of the Deputy Minister's branch responsible for administration and personnel, logistics and finance. Also responsible to the Deputy Minister are the Judge Advocate General, the Departmental Secretary and the Director of Information Services.

The Defence Council meets at regular intervals to consider and advise on major policy matters. The Council consists of: the Minister of National Defence as Chairman; the Associate Minister of National Defence as Vice-Chairman; and the Parliamentary Assistant to the Minister of National Defence, the Deputy Minister of National Defence, the Chief of Defence Staff, the Chairman of the Defence Research Board, the Vice-Chief of Defence Staff and a Secretary as members.

Liaison in Other Countries.—The Chief of Defence Staff, who is the Canadian military representative to the North Atlantic Treaty Organization, is responsible for advice on all NATO military matters and acts as a military adviser to Canadian NATO delegations. For purposes of liaison and the furtherance of international co-operation in defence, Canada also maintains: (1) the Canadian Defence Liaison Staff London, representing the Canadian Armed Forces and the Defence Research Board in Britain, the Chairman of which is the principal military adviser to the Canadian High Commissioner in London; (2) the Canadian Defence Liaison Staff Washington, representing the Canadian Armed Forces and the Defence Research Board in the United States, the Chairman of which is the principal military adviser to the Canadian Ambassador in Washington, the Canadian National Liaison Representative to SACLAN'T Headquarters, and the Canadian member of the NATO Military Committee in Permanent Session; (3) the Canadian National Military Representative in Paris, who is the principal military adviser to the Canadian Permanent Representative to the North Atlantic Council and the Canadian National Military Representative to SHAPE; and (4) Service Attachés in various countries throughout the world. In addition, a number of defence matters of concern to both Canada and the United States are considered by the Permanent Joint Board on Defence, which provides advice on such matters to the respective governments.

Canada-United States Committee on Joint Defence.—This Committee is composed of: for Canada, the Secretary of State for External Affairs, the Minister of National Defence and the Minister of Finance; for the United States, the Secretary of State, the Secretary of Defense and the Secretary of the Treasury; together with such other Cabinet members as either government may designate from time to time. Its function is to consult periodically on any matters affecting the joint defence of Canada and the United States; to exchange information and views at the ministerial level on problems that may arise, with a view to strengthening further the close co-operation between the two governments on joint defence matters; and to report on such discussions in order that consideration may be given to measures deemed appropriate and necessary to improve defence co-operation. Meetings normally alternate between Canada and the United States with the host country providing the chairman.

Mutual Aid.—Canada's contributions to NATO are outlined on pp. 170-171.

Rates of Pay and Allowances.—The entire pay structure for comparable ranks in the different Services is on a uniform basis. Monthly rates of pay and allowances effective Oct. 1, 1964 are given in Table 1.

1.—Monthly Rates of Pay and Allowances for the Canadian Armed Forces, Effective Oct. 1, 1964

Royal Canadian Navy	Canadian Army	Royal Canadian Air Force	Basic Pay	Progressive Pay						Group Pay for Tradesmen and Specialists ¹	Subsistence Allowance		Ration Allowance	Quarters Allowance	Marriage Allowance	Separated Family's Allowance (personnel not in married quarters and with children)	
				Years in Rank							Personnel not in Receipt of Marriage Allowance	Personnel in Receipt of Marriage Allowance				In Receipt of Subsistence Allowance	Not in Receipt of Subsistence Allowance
				2	3	4	6	8									
Ordinary Seaman (under 17 years)	Private (recruit under 17 years)	Aircraftman 2 (under 17 years)	\$ 65	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ 65	\$ —	\$ 30	\$ 24	\$ —	\$ —	\$ —	
Ordinary Seaman (entry)	Private (recruit)	Aircraftman 2	117	—	—	—	—	—	—	65	100	30	24	30	100		
Ordinary Seaman (trained)	Private (trained)	Aircraftman 1	124	—	—	—	—	—	—	65	100	30	24	30	100		
Able Seaman	Private (higher rate)	Leading Aircraftman	146	—	25	—	35	—	—	65	100	30	24	30	100		
—	Lance-Corporal	—	209	—	—	—	—	—	—	65	100	30	24	30	100		
Leading Seaman	Corporal	Corporal	215	4	—	4	4	—	—	65	100	30	24	30	100		
Petty Officer 2	Sergeant	Sergeant	239	5	—	5	5	—	—	75	105	30	30	30	105		
Petty Officer 1	Staff Sergeant	Flight Sergeant	272	6	—	6	6	—	—	85	105	30	35	30	105		
Chief Petty Officer 2	Warrant Officer 2	Warrant Officer 2	311	7	—	7	7	—	—	85	105	30	35	30	105		
Chief Petty Officer 1	Warrant Officer 1	Warrant Officer 1	347	10	—	10	10	—	—	95	110	30	40	30	110		
ROTP Cadet	ROTP Cadet	ROTP Cadet	78	—	5	—	—	—	—	65	—	30	25	—	—		

¹ Paid to other ranks only.

1.—Monthly Rates of Pay and Allowances for the Canadian Armed Forces, Effective Oct. 1, 1964—concluded

Royal Canadian Navy	Canadian Army	Royal Canadian Air Force	Basic Pay	Progressive Pay						Group Pay for Tradesmen and Specialists ¹	Subsistence Allowance		Ration Allowance	Quarters Allowance	Marriage Allowance	Separated Family's Allowance (personnel not in married quarters and with children)	
				Years in Rank							Personnel not in Receipt of Marriage Allowance	Personnel in Receipt of Marriage Allowance				In Receipt of Sub-sistence Allowance	Not in Receipt of Sub-sistence Allowance
				2	3	4	6	8	\$								
Acting Sub-Lieutenant	Second Lieutenant	Pilot Officer	250	—	—	—	—	—	—	—	75	110	30	25	40	75	110
Sub-Lieutenant	Lieutenant	Flying Officer	346	—	40	—	15	—	—	—	90	125	30	43	40	90	125
Commissioned Officer	Officer commissioned from S/Sgt or above	Officer commissioned from F/Sgt or above	423	15	—	15	15	15	—	—	65-95 ¹	110-125 ²	30	43	40	75-95 ²	110-125 ²
Lieutenant	Captain	Flight Lieutenant	453	20	—	20	20	20	—	—	95	125	30	43	40	95	125
Lieutenant-Commander	Major	Squadron Leader	600	25	—	25	25	25	—	—	113	135	30	53	40	113	135
Commander	Lieutenant-Colonel	Wing Commander	764	25	—	25	25	25	—	—	126	150	30	58	40	126	150
Captain	Colonel	Group Captain	974	45	—	45	—	—	—	—	139	165	30	64	40	139	165
Commodore	Brigadier	Air Commodore	1,249	50	—	50	—	—	—	—	153	180	30	68	40	153	180
Rear-Admiral	Major-General	Air Vice-Marshal	1,509	—	—	—	—	—	—	—	165	195	30	70	40	165	195
Vice-Admiral	Lieutenant-General	Air Marshal	1,667	—	—	—	—	—	—	—	180	210	30	72	40	180	210

¹ Paid to other ranks only.² Depending on rank on promotion.

The allowances shown in Table 1 are explained briefly as follows.

Subsistence Allowance.—This allowance is granted whenever rations and quarters are not provided. A married man living with his family uses his subsistence allowance for their maintenance as well as his own.

Ration Allowance.—A ration allowance is granted when quarters are available but rations are not provided. It is not payable concurrently with subsistence allowance.

Quarters Allowance.—A quarters allowance is granted when rations are provided but quarters are not available. It is not payable concurrently with subsistence allowance.

Marriage Allowance.—The amount of this allowance is \$30 a month for men and \$40 a month for officers, subject to a reduction of \$10 a month where permanent married quarters are occupied or \$2.50 a month where temporary married quarters are occupied. All ranks may draw this allowance upon marriage provided the age of 21 years has been attained by men and 23 years by officers.

Separated Family's Allowance.—An officer or man while separated from his dependants for any of various reasons (i.e., movement of dependants prohibited, illness of dependants, lack of suitable accommodation), on being moved other than temporarily, may be entitled to separated family's allowance at a rate and for a period depending on circumstances (i.e., rank, reason for separation, whether or not he has children, whether or not his family is accommodated in married quarters, whether or not he is provided with quarters and rations). The rates listed are the maximum.

In addition to the above, *Foreign Allowances* of various kinds are granted to officers and men posted for duty outside Canada to compensate for additional living expenses or hardships incurred; these vary with rank, appointment and location. *Isolation Allowances* are granted to officers and men serving at specified isolated posts in Canada at rates depending upon location and circumstances. *Outfit Allowances and Clothing Credits* are as follows: Officers receive a single payment of \$450 on appointment and Warrant Officers Class I, \$270; men receive a free issue of clothing when they join and thereafter a monthly clothing credit or allowance of \$7; Navy Petty Officers 1st class and above receive \$8; and women \$8. An *Aircrew Allowance* of \$75 a month is paid to an officer or man undergoing flying training. For qualified aircrew this allowance may be increased to \$150, depending on rank, if filling an appointment requiring active and continuous flying duties, and to \$100, depending on rank, for maintaining proficiency. *Submarine Allowance* is granted an officer or man undergoing submarine training or filling an appointment in a submarine; the allowance for trained submarine personnel varies from \$65 to \$115 a month depending on rank. An officer or man actively engaged or undergoing training as a parachutist or on flying or submarine duty and not entitled to aircrew allowance or submarine allowance is paid a *Risk Allowance* at the rate of \$30 a month. Medical, Dental and Legal Officers are granted extra allowances according to rank.

Command Structure.—The Canadian Forces are in the process of reorganization on a functional basis to reflect the major commitments assigned by the Government. Under this concept, all Forces devoted to a primary mission are grouped under a single commander who will be assigned sufficient resources to discharge his responsibilities. Specifically, the Canadian Forces will be formed into ten major organizational entities reporting to the Chief of the Defence Staff. These are as follows: (1) Mobile Command; (2) 4 Canadian Infantry Brigade Group; (3) 1 Air Division; (4) Maritime Command; (5) Air Defence Command; (6) Air Transport Command; (7) Training Command; (8) Materiel Command; (9) The Reserve and Emergency Measures Organization; and (10) The Canadian Forces Communication System.

The organizations stated for the three Services in Subsections 1, 2 and 3 following will continue to function for the present. However, they will be run down and absorbed in the new Commands as they become operational. It is expected that all Commands will be operational during 1966.

Subsection 1.—The Royal Canadian Navy

Role and Organization.—The role of the Royal Canadian Navy, in support of Canada's defence policy, is to maintain sea communications, to defend Canada against attack from the sea, to contribute to the collective defence of the NATO area against attack from the sea, and to contribute naval forces to the United Nations as may be required. It is substantially an anti-submarine (A/S) role.

The Royal Canadian Navy comes under the central authority of the Chief of the Defence Staff at Canadian Forces Headquarters in Ottawa. The Flag Officer Atlantic Coast, at Halifax, N.S., and the Flag Officer Pacific Coast, at Esquimalt, B.C., exercise operational and administrative command of ships and establishments within the Atlantic and Pacific Coast Commands. The Flag Officers also hold the additional appointments of Maritime Commander Atlantic and Maritime Commander Pacific, respectively. As such, each is responsible for anti-submarine operations involving RCN and RCAF forces in his Command. The 20 Naval Divisions of the Royal Canadian Naval Reserve are under the over-all command of the Commanding Officer Naval Divisions, with headquarters at Hamilton, Ont. There are naval staffs in London, England, and Washington, D.C., U.S.A., to maintain liaison with the Royal Navy and the United States Navy. As a result of Canada's NATO commitments, officers of the Royal Canadian Navy serve on the staffs of: the Supreme Allied Commander, Atlantic, at Norfolk, Va., in the United States; the Commander-in-Chief, Eastern Atlantic Area, at Northwood in Britain; and the Commander-in-Chief, Western Atlantic Area, at Norfolk, Va. The Flag Officer Atlantic Coast holds the NATO appointment of Commander, Canadian Atlantic Sub-Area.

The strength of the RCN on Sept. 30, 1965, was 19,201 officers, men and women in the regular force and 2,272 in the reserve force.

Fleet.—In September 1965 the RCN had 42 ships in commission and two submarines of the Royal Navy under RCN operational control at Halifax. During 1965, up to September, two new HMC ships and one Naval Auxiliary joined the Fleet: HMCS *Annapolis*, the last of the new destroyer escorts to be built, commissioned at Halifax on Dec. 19, 1964; HMCS *Ojibwa*, the first of the three 'O' Class conventional submarines being built for the RCN at Chatham, England, commissioned on Sept. 23, 1965; and the Canadian Naval Auxiliary Vessel *Endeavour*, an oceanographical research ship of 1,540 tons built at Esquimalt, B.C., for service on the Pacific Coast. The second 'O' Class submarine, *Onondaga*, was launched on Sept. 25, 1965 and the third, *Okanagan*, was laid down in March 1965. Also under construction in September 1965 was the fast hydrofoil craft FHE 400 and a second research vessel for service on the East Coast was in the planning stage. The last two of seven St. Laurent class destroyer escorts, *Margaree* and *Fraser*, were being converted to operate helicopters and work had started on *Terra Nova*, the first of seven ships of her class to undergo major modernization. By September, 13 CHSS-2 Sea King helicopters had been delivered to operate from the aircraft carrier *Bonaventure* and destroyer-escorts, and more will be delivered in 1966. The operational support ship HMCS *Provider* completed her first year with the Fleet and two more ships of the same type are projected. Eight ships were disposed of during the year, all of which were old destroyer escorts or ocean escorts.

Training.—The major training establishments of the RCN are HMCS *Cornwallis* near Digby, N.S.; HMCS *Shearwater* near Dartmouth, N.S.; HMCS *Stadacona* at Halifax, N.S.; HMCS *Hochelaga* at LaSalle, Que.; HMCS *Gloucester* near Ottawa, Ont.; and HMCS *Naden* at Esquimalt, B.C. Men and women entering the RCN receive their basic training at HMCS *Cornwallis*; the courses are normally 15 weeks in length. English language training is provided for French-speaking recruits at HMCS *Hochelaga*, lasting 16 weeks. Cadets entered under the Regular Officer Training Plan (ROTP) or College Training Plan (CTP) receive most of their early training at the Canadian Services Colleges (see p. 1116) or a Canadian university; those entered on a short-service appointment train in HMCS *Venture* at Esquimalt, B.C. All cadets receive practical training with the Fleet at various

times of the year. A University Naval Training Division program provides junior officers for the RCN and the RCN Reserve. The cadets are required to complete two winter-training periods and two summer-training periods and certified specified courses.

On Sept. 30, 1965, the RCN had approximately 800 men taking new-entry training, 1,400 men undergoing other training in the various trade areas, and 550 cadets and 200 officers on courses.

Royal Canadian Naval Reserve.—The recruiting and training of officers and men of the RCN Reserve is conducted mainly through 16 Naval Divisions across Canada under the over-all command of the Commanding Officer Naval Divisions, with Headquarters at Hamilton, Ont. Naval Divisions are established in the following centres:—

St. John's, Nfld., HMCS *Cabot*
Halifax, N.S., HMCS *Scotian*
Saint John, N.B., HMCS *Brunswick*
Quebec, Que., HMCS *Montcalm*
Montreal, Que., HMCS *Donnacona*
Toronto, Ont., HMCS *York*
Ottawa, Ont., HMCS *Carleton*
Kingston, Ont., HMCS *Cataragui*

Hamilton, Ont., HMCS *Star*
Windsor, Ont., HMCS *Hunter*
Port Arthur, Ont., HMCS *Griffon*
Winnipeg, Man., HMCS *Chippawa*
Saskatoon, Sask., HMCS *Unicorn*
Calgary, Alta., HMCS *Tecumseh*
Vancouver, B.C., HMCS *Discovery*
Victoria, B.C., HMCS *Malahat*

Naval Divisions, commanded by Reserve officers, provide both basic and specialized training for officers and men of the RCN Reserve. The Great Lakes Training Centre at Hamilton conducts new-entry reserve training afloat during the summer months.

Royal Canadian Sea Cadets.—Royal Canadian Sea Cadets, sponsored by the Navy League of Canada and supported by the RCN, consist of 167 corps, supervised by 16 naval officers responsible to the Commanding Officer Naval Divisions. Instruction is carried out by RCSCC officers. Two training establishments—*Cornwallis* on the East Coast and *Quadra* on the West Coast—accommodate officers and cadets for two-week training periods in the summer. In addition, selected cadets receive a seven-week training course at naval establishments. Sea experience is provided throughout the year in various types of ships of the RCN. In August 1965, the strength of the corps was 1,060 officers and 9,111 cadets.

Subsection 2.—The Canadian Army

Role and Organization.—The role of the Canadian Army in support of Canada's defence policy is to contribute to and support NATO forces overseas, to contribute to and support the North American regional defence, to contribute Army forces to the United Nations as may be required and to undertake survival operations in Canada when necessary. The Canadian Army comes under the central authority of the Chief of the Defence Staff at Canadian Forces Headquarters in Ottawa and is divided for command and control into Commands and Areas with Headquarters as follows:—

<i>Command</i>	<i>Headquarters</i>	<i>Area and Headquarters</i>
Eastern Command.....	Halifax, N.S.....	(1) New Brunswick Area, Fredericton, N.B. (2) Newfoundland Area, St. John's, Nfld. (3) Nova Scotia-Prince Edward Island Area, Halifax, N.S.
Quebec Command.....	Montreal, Que.....	(4) Eastern Quebec Area, Quebec, Que.
Central Command.....	Oakville, Ont.....	(5) Eastern Ontario Area, Kingston, Ont. (6) Central Ontario Area, Oakville, Ont. (7) Western Ontario Area, London, Ont.
Western Command.....	Edmonton, Alta.....	(8) British Columbia Area, Vancouver, B.C. (9) Alberta Area, Edmonton, Alta. (10) Saskatchewan Area, Regina, Sask. (11) Manitoba Area, Winnipeg, Man.

The Canadian Army comprises the Canadian Army (Regular) and the Reserves. The Canadian Army (Regular) consists of a field force of four Infantry Brigade Groups, headquarters and administrative, training and logistic support units. One of the Infantry Brigade Groups is in Europe with the NATO Force and is under command of the Supreme Allied Commander in Europe. The Reserves include the Canadian Army (Militia), the Regular Reserve, the Supplementary Reserve, the Canadian Officers' Training Corps, the Cadet Services of Canada and the Reserve Militia. Additional to but not an integral part of the Canadian Army are the Services Colleges, officially authorized cadet corps, rifle associations and clubs.

At Sept. 30, 1965, the strength of the Canadian Army (Regular) was 44,767 officers and men and the strength of the Canadian Army (Militia) was 31,740, including personnel taking the special militia training courses.

Operations in 1964.—In fulfilment of military obligations under the North Atlantic Treaty, Canada continued to provide ground forces for the defence of Western Europe. The 4th Canadian Infantry Brigade Group, the major units of which were the Fort Garry Horse, the 2nd Regiment Royal Canadian Horse Artillery, No. 1 Surface to Surface Missile Battery, 1st Battalion The Royal Canadian Regiment, 1st Battalion Princess Patricia's Canadian Light Infantry and the 2nd Battalion The Black Watch (Royal Highland Regiment) of Canada, constituted the Canadian Army contribution to NATO in Germany. The Headquarters of the Brigade is at Soest and married quarters are located in the vicinity of Soest, Werl, Hemer and Iserlohn. In March 1964, Canada agreed to provide one battalion group to form part of Allied Command Europe Mobile Forces (Land Component). This battalion group was stationed in Canada but held in readiness for employment should the Mobile Forces be activated.

The Canadian Army continued to provide forces in support of United Nations operations as follows. (1) A force of approximately 870 officers and men forms a part of the United Nations Emergency Force in the Middle East, with tasks of patrolling a sector of the Egypt-Israel international frontier, and providing engineer services, communications, stores, transport, workshop and postal services for the Force. (2) Until withdrawn in July 1964, 57 Canadian Signals Unit, with a strength of approximately 310 officers and men, supported the United Nations Force in the Congo by providing communications, staff officers and other headquarters personnel; the bulk of the unit was stationed in Leopoldville with signal detachments at subordinate headquarters throughout the country. (3) Canadian Army contributions to other United Nations commissions included some 27 officers employed in Palestine, Kashmir and Korea.

In March 1964, in response to a request from the United Nations, an infantry battalion, a reconnaissance squadron, a brigade headquarters and a Canadian element for the UN Headquarters were dispatched to Cyprus to form part of the United Nations Force in Cyprus. At the end of the year the Canadian Contingent, totalling approximately 1,150 men, consisted of 1st Battalion the Canadian Guards, a Reconnaissance Squadron from the Lord Strathcona's Horse (RC) and Headquarters 3 Canadian Infantry Brigade Group which acted as the UN Headquarters for Nicosia Zone. A specially trained and equipped infantry battalion was maintained on standby in Canada to provide at short notice a force for service in support of the United Nations in any part of the world. In addition to its United Nations commitments, the Canadian Army, as a result of Canadian participation in the International Commissions for Supervision and Control in Viet Nam, Cambodia and Laos, continued to provide approximately 75 officers and men for truce supervisory duties in Indo-China.

During 1964, the Canadian Armed Forces Training Team was maintained in Ghana to assist in the training of the Ghana armed forces. The Canadian Army provided 23 of the members of the team, the Royal Canadian Navy three, and the Royal Canadian Air Force four. An officer of the Royal Canadian Engineers was employed on map-making duties in Nigeria. A number of officer cadets from Tanzania, Zambia, Nigeria and Jamaica have received training in Canadian Army schools.

Training.—The training policy for the Canadian Army (Regular) is determined at Canadian Forces Headquarters. General Officers Commanding Commands implement the training policies within their Commands except for that conducted at army and corps schools under the supervision of Canadian Forces Headquarters. On Sept. 15, 1965, a newly formed Training Command Headquarters (Army Component) assumed the latter responsibility. During 1964, the basic training of 3,579 recruits and the corps training of officers and men of the Canadian Army were carried out at regimental depots, units and corps schools, and 10,796 personnel attended courses at the schools of instruction; 397 officers completed promotion qualification examinations; 75 officers attended the Canadian Army Staff College and six commenced courses at Commonwealth Staff Colleges. Qualifying courses for junior NCO's were conducted under General Officers Commanding Commands and senior NCO courses were conducted at corps schools. Officers from the RCN and the RCAF as well as officers from Australia, Britain, Germany, India, Pakistan, Tanzania, Jamaica, Zambia and the United States attended courses at Canadian Army schools of instruction.

English and French language training, which is available to all ranks of the Canadian Army, is conducted by Commands and CFHQ. The R22eR Depot (Language Training Company) conducts six-month French language courses for English-speaking officers and NCO's and a number of French-speaking recruits and potential NCO's receive English language training.

Trade and specialty training is given at corps schools and units. When required, the facilities of civilian schools are used to supplement training at Army establishments. Under an apprentice training program, selected young men are trained as soldier tradesmen and prepared for advancement to senior non-commissioned ranks. During 1964, an additional 397 apprentices were enrolled and 45 civilian teachers were employed to provide academic instruction for about 900 apprentice soldiers. Academic credits are obtained from the educational authorities of the province where the training is conducted.

The training of the Field Force Canada airborne/air transportable element continued during 1964. Airborne continuation training was carried out by each unit in conjunction with unit exercises. Units carried out exercises during the winter under cold weather conditions. Parachute and air supply courses were conducted at the Canadian Joint Air Training Centre at Rivers, Man., and courses in Arctic training at Fort Churchill, Man. Collective training for units in Canada was carried out during the summer months at Camp Gagetown, N.B., and Camp Wainwright, Alta. All-arms training comprised sub-unit and unit training and culminated in exercises at the Brigade Group level.

Under the Regular Officer Training Plan (ROTP), selected students are trained for commissions in the Canadian Army (Regular) at the Canadian Services Colleges (see p. 1116) and at Canadian universities and colleges that have university reserve contingents. Also, units of the Canadian Officers' Training Corps (COTC) form an integral part of the campus life at most Canadian universities. These contingents are maintained primarily to produce officers for the Reserve component of the Army and receive training similar to that given members of the ROTP.

Canadian Army (Militia).—The recently revised priority of roles of the Militia are: support of the Regular Army; provision of a training force; and assistance for internal security and the provision of specialists to assist in staffing national survival installations in times of national emergency. Militia training is intended to produce personnel and units well trained in the basic military skills and techniques of their corps and in the basic skills for survival operations. In consonance with these newly assigned roles, the Militia was extensively reorganized during the period November 1964–March 1965. Based largely upon recommendations of the Ministerial Commission on the Reorganization of the Canadian Army (Militia), a total of 176 self-accounting units, having an approved establishment of 41,807 all ranks, was authorized. Concurrently, personnel and training policies were revised. Emphasis has been placed on youth, physical fitness, professional competence and vigorous leadership.

Royal Canadian Army Cadets.—The aim of the Army Cadet organization is to provide cadets with a sound knowledge of military fundamentals based on the qualities of leadership, patriotism and good citizenship. Planning and the supervision of organization, administration and training are carried out by the Canadian Army (Regular), and 129 officers and men are employed continuously on these duties. Training and administration of Army cadets is the responsibility of officers of the Cadet Services of Canada, a sub-component of the Reserves, and civilian instructors. As of June 30, 1965, cadet and civilian instructors numbered 2,253.

Cadets, aged 14-18 inclusive, take a progressive three-year course in basic military subjects at their cadet corps and selected cadets are given training at summer camps. In 1964, 5,339 cadets attended seven-week trades and specialist courses at Aldershot, N.S., Farnham, Que., Picton, Ipperwash and Camp Borden, Ont., Clear Lake, Man., and Vernon, B.C.; 1,482 cadets attended two-week cadet leader and special camps at Aldershot, N.S., Picton, Ont., and Clear Lake and Rivers, Man.; 212 master cadets attended the National Cadet Camp at Banff, Alta., for four weeks; 58 cadets proceeded on an exchange of cadets between Canada and Barbados, Jamaica and Trinidad and Tobago during the summer of 1965; 441 cadet instructors attended qualifying courses of up to seven weeks and 491 cadet and civilian instructors were employed in training and administrative duties at summer camps. As of September 1965, there were 66,529 cadets enrolled in 503 corps.

Subsection 3.—The Royal Canadian Air Force

Role and Organization.—The role of the Royal Canadian Air Force in support of Canada's defence policy is to provide forces in being for the defence of the North American Continent and the NATO area and the support of the United Nations. The Royal Canadian Air Force comes under the central authority of the Chief of the Defence Staff at the Canadian Forces Headquarters in Ottawa. The major RCAF Formations and their Headquarters are as follows:—

<u>Formations</u>	<u>Headquarters</u>
Air Defence Command.....	St. Hubert, Que.
No. 1 Air Division.....	Metz, France
Air Transport Command.....	Trenton, Ont.
Air Materiel Command.....	Rockcliffe, Ont.
Maritime Air Command.....	Halifax, N.S.
Training Command.....	Winnipeg, Man.

The organization includes 20 flying squadrons of the RCAF Regular and six flying squadrons of the RCAF Auxiliary. The Auxiliary squadrons perform an emergency and rescue role. Three of the regular squadrons contribute to the air defence of the Canada-United States Regions; eight squadrons are assigned to No. 1 Air Division in Europe; four squadrons are required for RCAF transport operations at home and abroad; four maritime squadrons operate in conjunction with other forces for the defence of Canada's East and West Coasts; and one squadron carries out Army support training, aerial photography and reconnaissance functions in Canada.

The strength of the RCAF at Sept. 30, 1965 was 46,385 officers and men in the Regular Force and 833 in the Auxiliary Force.

Operations in 1965.—The RCAF contribution to the air defence of North America, consisting of three CF101B squadrons, two Bomarc squadrons and 29 radar sites, continued under the operational control of North American Air Defence Command (NORAD). The Distant Early Warning Line (DEW) continued to operate as an integral part of NORAD. No. 1 Air Division, Canada's NATO contribution in Europe was equipped with eight squadrons of CF104 aircraft. Six of these squadrons were employed in the strike/attack role and two were employed in the photo reconnaissance role.

The RCAF Maritime Air Command during 1965 contributed four land-based maritime squadrons to the Maritime Defence of North America; three of these, based on the East Coast, were equipped with *Argus* aircraft, the largest and most modern anti-submarine aircraft in the world. A continuous program of aircraft modernization and re-equipping with improved anti-submarine devices was conducted throughout the year. The East Coast squadrons and a *Neptune* aircraft squadron on the West Coast participated in a number of national, international and NATO anti-submarine exercises and maintained daily patrols and surveillance of ocean areas adjacent to the Canadian coastline. Early in 1966, RCAF Maritime Air Command will become an integral part of the new integrated Maritime Command.

Air Transport Command (ATC) continued to provide support to the Air Division and to the Army Brigade in Europe using the *Yukon* and *Hercules* (C130B and C130E) aircraft. Airlift support was also given to the United Nations Emergency Force Middle East and the United Nations in Cyprus using *Yukon*, *North Star* and *Hercules* aircraft. In addition, flying units operating *Caribou* and *Otter* aircraft were maintained in Egypt and India/Pakistan in support of UNEF, UNMOGIP and UNIPOM. In Canada, ATC aircraft airlifted Department of National Defence personnel and cargo over air routes from coast to coast. C119 and C130 aircraft were used for paratroop training of the Canadian Army, and 408 Squadron carried out routine photographic missions for the Department of National Defence. Search and rescue services were provided in Canadian areas of responsibility. Of the 10 major air searches conducted, nine were for civil aircraft and one was for military aircraft. In addition, there was one major marine search and 212 mercy missions.

Training.—Each year the RCAF gives basic training to several thousand officers and men to meet retirements, releases and the introduction of new equipment. English language training on initial enlistment is given to French-speaking personnel—at Centralia, Ont., for officers and at St. Jean, Que., for airmen. Course length is variable, up to a maximum of 21 weeks. Advanced trades training is given within the service, training on specialized equipment is obtained also from industrial firms, and some officers attend postgraduate courses at Canadian and United States universities. In addition, aircraft trades training is given to a number of trainees from developing countries. Aircrew selection is carried out at Officers Selection Unit, Centralia. RCAF pilots are given basic and advanced jet training at Moose Jaw, Sask., and Gimli, Man., and advanced multi-engine training at Portage la Prairie, Man., and navigators are trained at Winnipeg, Man. In the year ending Mar. 31, 1966, approximately 130 RCAF pilots and 100 navigators will complete training to "wings" standard; pilot training on piston-engined aircraft will be provided for 45 RCN and 25 CA(R) officers. Under bilateral agreements, jet training will be provided for 35 Danish and 25 Norwegian pilots, navigation training for three Norwegian and two Danish navigators, and piston-engine training for 15 Malaysian and 26 Tanzanian pilots.

Technical and indoctrination training for newly commissioned non-flying list officers is given at Central Officers School at Centralia. Basic and advanced trades training for airmen is given at the RCAF technical trades schools at Camp Borden or Clinton in Ontario. Staff training at the junior and senior level is given at Air Force College, Toronto; the two formal courses are bridged by a correspondence, self-study course. Trade advancement training to help airmen improve their job proficiency and to qualify for higher trade groupings and pay is provided to Regular Force and Reserve personnel. Operational training on specific aircraft and equipment is given at field technical training units and operational training units situated throughout Canada. Semi-annual trade examinations are written under the direction of the Training Standards Establishments, Trenton, Ont.

RCAF Reserves.—The active sub-components of the RCAF Reserves are designated as the Auxiliary and the Primary Reserve.

The Auxiliary is made up of four Auxiliary Wing Headquarters located in Montreal, Toronto, Winnipeg and Edmonton and six Flying Squadrons located in the same cities;

Wing Headquarters direct the operations, training and administration of the Flying Squadrons in their respective areas. All Flying Squadrons are equipped with two types of transport aircraft—the C-45 *Expeditor* and the DHC-3 *Otter*. Their role is light transport, national survival, and search and rescue services. Light transport and national survival exercises are carried out in conjunction with Regular and Reserve formations of the RCN and the Canadian Army as well as the RCAF. Search and rescue operations are often carried out in accompaniment with civilian and RCAF Regular counterparts. In the event of emergency, these squadrons would be used to support civilian and military requirements.

The Primary Reserve is composed of Air Cadet Officers who staff the Royal Canadian Air Cadet Squadrons throughout Canada, of Manning Support Officers who are employed for 15 to 30 days each year in career counselling duties at RCAF recruiting units, and of University Squadron Staff Officers whose main function is to train members of the University Reserve Training Plan (URTP) during the academic year.

Each summer, approximately 130 first-year URTP undergraduates attend an officers training course at Reserve Officers School, Centralia. Following this initial training, specialized training is provided in aeronautical engineering, armament, administration, accounts, construction engineering, mobile support equipment, recreation, supply or telecommunications. Second-year cadets continue the formal or contact training begun the previous year and a small number of outstanding cadets is selected for a third summer of contact training at a field unit.

Royal Canadian Air Cadets.—Air cadet activities are sponsored and administered by the Air Cadet League of Canada, a voluntary civilian organization. The objectives of air cadet training are to develop the attributes of good citizenship, to stimulate an interest in aviation and space technology and to develop a high standard of physical fitness, mental alertness and discipline. The Canadian Armed Forces work in partnership with the League and provide training personnel, syllabi and equipment.

The authorized ceiling of cadet enrolment is 28,000; the strength at Oct. 1, 1965 was approximately 27,500 attached to 365 squadrons across Canada. During the summer of 1965, camps were conducted at RCAF Stations at Greenwood, N.S., St. Jean, Que., Trenton, Ont., and Namao, Alta., attended by more than 7,000 cadets and 500 officers and instructors. A seven-week course for senior leaders was held for 240 cadets at Camp Borden, Ont. Under the International Exchange Visits Program for 1965, sponsored jointly by the Canadian Armed Forces and the Air Cadet League, 60 cadets were exchanged with Belgium, Britain, Denmark, France, Israel, the Netherlands, Norway, Sweden, Turkey, the United States and West Germany.

About 250 senior Air Cadets receive flying training annually at flying clubs through scholarships provided by the Canadian Armed Forces and additional scholarships are awarded by the Air Cadet League and other organizations, which in 1965 numbered 80.

Subsection 4.—The Defence Research Board

The Defence Research Board, established in 1947, provides scientific assistance and advice to the Canadian Forces. It consists of a full-time chairman and vice-chairman, two or more ex officio members and nine other appointed members. The ex officio members are the Deputy Minister of National Defence, the President of the National Research Council and such other members as may be appointed by the Minister of National Defence as members representing the Canadian Forces. The other members, appointed by the Governor in Council for three-year terms, are selected from universities and industry because of their scientific and technical backgrounds.

The organization consists of headquarters staff, an operational research corps and seven research laboratories, and liaison offices at London, England, and Washington, U.S.A. Advisory committees composed of leading Canadian scientists provide invaluable assistance to the Board by their consideration of a variety of problems.

The Defence Research Board is an integral and permanent part of the defences of the country. The Chairman is a member of the Defence Council. The Board's fundamental purpose is to correlate the special scientific requirements of the Armed Forces with the general research activities of the scientific community at large. Its efforts are concentrated upon defence problems of particular importance to Canada or for which Canada has unique resources or facilities. Existing research facilities such as those of the National Research Council are used whenever possible to meet the needs of the Armed Forces. The Board has built up new facilities only in those fields that have little or no civilian interest. Close collaboration is maintained with Canada's larger partners; specialization is made possible only through the willingness of Britain and the United States to exchange the results of their broader programs for the less numerous but nevertheless valuable benefits of Canadian research.

The Board operates seven specialized research and development laboratories which are concerned primarily with maritime warfare, guns, rockets and missiles as armaments, defence against missiles, research on the upper atmosphere using ground-based equipment as well as balloons, rockets and satellites, propulsion and propellants, telecommunications, geophysical studies of the Arctic, defence against atomic, chemical and biological weapons, studies of shock and blast, biosciences research and operational research. The Board also supports and organizes an extramural program of research in the universities and industry. Some 200 grants are awarded annually to Canadian university staff members for research on problems of defence interest and a special fund is used to place contracts with industry for research in selected fields.

Research on maritime warfare problems, particularly those relating to submarine detection and tracking, is carried out at the Naval Research Establishment, Dartmouth, N.S., and at the Pacific Naval Laboratory, Esquimalt, B.C. Research and development of weapons and defence against various weapons is undertaken in co-operation with the Armed Services at several establishments, the largest of which is the Canadian Armament Research and Development Establishment near Valcartier, Que. Its principal activities include studies of defence against missiles, studies of the properties and application of infrared and other detection devices, exploration of the upper atmosphere with balloons and rockets, and the development of rocket propellants.

The Defence Research Telecommunications Establishment in Ottawa is concerned mainly with problems of communications which involve exploration of the ionosphere with ground-based equipment, with rockets and with satellites, and the applications of the science of electronics to military problems. Research on the defensive aspects of chemical, biological and atomic weapons is carried out at two Defence Research Board establishments—the Defence Chemical, Biological and Radiation Laboratories at Ottawa, Ont., and the Suffield Experimental Station at Ralston, Alta.

The Defence Research Medical Laboratories near Toronto are concerned with biosciences research, chiefly with raising the operating efficiency of man working in the military environment, and includes such subjects as human physiology, experimental psychology and research on clothing.

Operational research is carried on by an integrated headquarters group which conducts long-range scientific analysis of future defence problems. The staff consists of operational research scientists provided by the Board and service officers. The Board also provides operational research scientists as members of teams in the various Service Commands.

Thus, the Board continues to support the fields of research that are of foremost interest to the Canadian Armed Services and the program is under continuing review to ensure that cognizance is taken of all changes in emphasis in defence requirements. Close liaison is maintained between the Defence Research Board and the Department of Defence Production to ensure that research and development activities are closely integrated with production.

Section 2.—Services Colleges and Staff Training Colleges

Canadian Services Colleges.—The three Canadian Services Colleges are the Royal Military College of Canada founded at Kingston, Ont., in 1876, Royal Roads which was established in 1941 near Victoria, B.C., as a school for naval officers, and Collège militaire royal de Saint-Jean established at St. Jean, Que., primarily to meet the needs of French-speaking cadets. The Royal Military College and Royal Roads were constituted as Canadian Services Colleges in 1948, and Collège militaire royal de Saint-Jean was opened in 1952. In 1959, the Legislature of the Province of Ontario granted the Royal Military College a charter empowering it to grant degrees.

The purpose of the instruction and training at the Services Colleges is to impart the knowledge, to teach the skills and to develop the qualities of character and leadership essential to officers of all three Armed Services. The courses of instruction provide a sound and balanced liberal scientific and military education leading to degrees in arts, science and engineering which are granted by the Royal Military College.

For cadets entering the Royal Military College and Royal Roads, the course is of four years duration. As the third and fourth years of the course are given only at the Royal Military College, cadets entering Royal Roads must proceed to that College for the final two years of the arts, science or engineering courses. For cadets entering Collège militaire royal de Saint-Jean, which gives a preparatory year, the course is of five years duration. Cadets take the preparatory, first and second years at that institution and the final two years at the Royal Military College.

For admission to the Royal Military College of Canada and to Royal Roads, an applicant must have obtained senior matriculation or equivalent standing. The compulsory subjects are: English, mathematics (algebra, geometry and trigonometry), physics, chemistry and either a language or history; junior matriculation standing in French is desirable. For admission to Collège militaire royal de Saint-Jean, an applicant must have junior matriculation or equivalent. The compulsory subjects are: English (for English-speaking applicants), French (for French-speaking applicants), algebra, plane geometry, physics and chemistry. Applicants from classical colleges must have sixth year standing (rhétorique). A candidate who has obtained a Bachelor of Arts degree at a classical college or has completed first year science or philosophy II at Collège Mont Saint-Louis may apply for entry into first year at Collège militaire royal de Saint-Jean. A candidate must be single, a Canadian citizen or British subject normally resident in Canada, and be physically fit. The age limits for admission to the first year are between 16 and 21 years as of Jan. 1 of the year of entry; for admission to the preparatory year a cadet must have reached his 16th but not his 20th birthday on Jan. 1 of the year of entry.

Most cadets entering the Services Colleges enrol under the Regular Officer Training Plan. Applicants accepted enrol according to their choice, as officer cadets in the Royal Canadian Navy, the Canadian Army or the Royal Canadian Air Force. Costs of tuition, board, lodging, uniforms, books, instruments and other fees are borne by the Department of National Defence and cadets are paid \$78 a month. On successfully completing their academic and military training, cadets are granted permanent commissions in the Regular Force.

A limited number of high school students may be selected to enter the Services Colleges on payment of tuition fees, etc. Graduates are granted commissions and serve in the Reserve components of the Forces. Young men who qualify for Dominion Cadetships also serve in a reserve capacity. These Cadetships are awarded by the Federal Government in recognition of a candidate's parent having been killed, died or been severely incapacitated in the service of one of Canada's Armed Forces. A maximum of 15 Dominion Cadetships may be awarded in any one year, five in each Service. Each is valued at \$580, which covers first-year fees.

During the 1964-65 academic year, 1,115 cadets were in attendance at the Services Colleges, 521 of them at the Royal Military College, 199 at Royal Roads, and 395 at Collège militaire royal de Saint-Jean. Of the total, 238 were enrolled in the Navy, 390 in the Army and 487 in the Air Force.

Staff Training Colleges.—The Canadian Army Staff College at Kingston, Ont., gives an 11-month course for the training of officers for staff appointments. Although most of the student body is composed of Canadian Army officers, officers from the other two Services and from the armies of other Commonwealth and NATO countries also attend. Instruction is based upon the study of précis and references, demonstrations and lectures, and indoor and outdoor exercises. Aside from purely military subjects, the curriculum includes national survival, research and development, world affairs and lectures by prominent guest speakers.

The Royal Canadian Air Force College at Armour Heights in Toronto, Ont., consists of a Staff College for senior officers, and a Staff School and an Extension School for junior officers. The former affords professional education for officers normally of Squadron Leader and Wing Commander ranks, preparing them to assume higher appointments. The directing staff selected from the Royal Canadian Air Force is augmented by an officer from each of the Royal Canadian Navy, the Canadian Army and the Royal Air Force. The student body, in addition to Royal Canadian Air Force officers, has ten representatives from the Royal Canadian Navy and one or two from each of the Canadian Army, Royal Air Force and United States Air Force. The College course is designed to assist the student to think logically and express his ideas with precision, both orally and in writing; to know his Service and understand the employment of air forces; to keep abreast of scientific and technical developments that may affect the employment of air forces; and to gain a perspective of national and international problems. The 14-week course given at the Staff School and the Extension School provides junior officers with the professional skills and knowledge needed at Flight Lieutenant and Squadron Leader ranks and introduces them to further professional studies. The student comes to the course with one or more tours of specialist employment behind him. The Extension School provides a course of correspondence study to enable graduates to consolidate and expand the knowledge gained at the Staff School, to practise skills of logical thought and the accurate presentation of ideas, and in general to prepare for the acceptance of greater responsibilities in their present or higher ranks.

The National Defence College at Kingston, Ont., is a senior defence college providing an 11-month course of study covering the economic, political and military aspects of the defence of Canada. Senior officers and civil servants from the Armed Forces and government departments attend, as well as a few representatives from industry. Lecturers are chosen from among the leaders in various fields in Canada, the United States, Britain and other countries. In addition, educational tours and visits to certain parts of Canada, the United States, Europe and the Middle East give students more knowledge of conditions and influences in their own and other countries.

PART II.—DEFENCE PRODUCTION*

Under the provisions of the Defence Production Act (RSC 1952, c. 62, as amended), the Department of Defence Production has exclusive authority to procure the goods and services required by the Department of National Defence and the responsibility to ensure that the necessary productive capacity, capability and materials are available to support the defence production program. The latter responsibility includes defence development and production-sharing with the United States, defence production export activities with NATO and other friendly countries, and co-operation in research, development and production programs within the NATO alliance. The Department also provides management and staff for the Canadian Commercial Corporation, a Crown company primarily responsible for the contracting in Canada for defence goods purchased by other governments and for

* Prepared in the Information Division, Department of Defence Production, Ottawa.

contracting for supplies to meet Canadian requirements under External Aid Programs and other international agreements. The Department is responsible for planning and making other necessary arrangements for the immediate establishment of a war supplies agency, should there be a nuclear attack.

Implementing recommendations of the Royal Commission on Government Organization, the Government assigned to the Department of Defence Production the responsibility for forming a central purchasing and supply agency. The plan of organization for a future Department of Supply prepared by the Department requires the integration of the purchasing organization of Defence Production with supply functions. These supply functions were grouped with the regional purchasing function of Defence Production and Crown Assets Disposal Corporation to form the Canadian Government Supply Service.

Procurement and construction contracts issued by the Department of Defence Production and Defence Construction (1951) Limited* had a net value of \$657,985,000 in 1964 and \$395,317,000 in the first half of 1965. (The net value of contracts is made up of the value of new contracts issued as well as amendments that increased or decreased existing contracts.) The net value of contracts in 1964 according to the various sources for which they were issued was as follows:—

<u>Source</u>	<u>Net Value</u>	<u>P.C. of Total Value</u>
	<u>\$</u>	
Department of National Defence.....	497,158,284	75.56
Department of Defence Production (DDP Votes).....	9,564,568	1.45
Foreign Governments—		
United States.....	84,556,999	12.85
Britain.....	2,018,381	0.31
Other.....	15,842,051	2.41
Canadian Sources other than DND and DDP—		
External Aid.....	13,075,616	1.99
Other.....	35,769,053	5.43
TOTALS.....	657,984,952	100.00

The \$497,158,000 in contracts placed by the Department of National Defence in 1964 was 4.8 p.c. below the value in 1963. The largest decrease was in the aircraft program; net value of aircraft contracts amounted to \$146,050,000 against \$167,545,000 in 1963. There was also a decrease of \$11,032,000 in the electronics and communications equipment program, and of \$4,228,000 in the shipbuilding program. On the other hand, there was an increase of \$9,997,000 in tank-automotive contracts and of \$7,115,000 in armament contracts.

Contracts placed outside Canada on behalf of the Department of National Defence in 1964 amounted to \$99,037,000, which was 20 p.c. of the total net value of prime contracts issued. Contracts valued at \$70,951,000 were placed in the United States, \$21,114,000 in Britain and \$6,972,000 in other countries. Expenditure on all contracts placed in 1964 was \$546,232,000, an amount 4.1 p.c. higher than in 1963. Expenditure against aircraft programs increased by \$16,483,000 or 9.4 p.c. and that for tank-automotive by \$14,748,000 or 136.5 p.c.

Of the \$397,317,000 in contracts issued during the first half of 1965, \$279,147,000 or 71 p.c. was for the Department of National Defence and expenditure against prime contracts placed for that Department stood at \$264,448,000. The Department of Defence Production placed \$9,565,000 in contracts in 1964 and \$191,000 in the first half of 1965 against certain appropriations to assist Canadian defence industries. Revolving Fund contracts amounted to \$49,325,000 in 1964, primarily to make funds available in connection with the Canada-United States F-104G Mutual Aid Program (MAP); Revolving Fund contracts amounted to \$8,839,000 in the first half of 1965.

* Military construction is the prime function of Defence Construction (1951) Limited; responsibility for that agency was transferred from the Minister of Defence Production to the Minister of National Defence on Apr. 22, 1965.

Contracts placed for all sources other than the Departments of National Defence and Defence Production totalled \$151,261,000 in 1964, of which \$84,557,000 was for the United States Government and \$2,018,000 for the British Government.

Defence Production and Development Sharing.—In 1964, \$166,800,000 worth of United States defence production-sharing business was placed with Canadian industry, an increase of 16.8 p.c. over 1963. The higher level in 1964 was partly accounted for by an increased level of incremental funding on the F-104G MAP aircraft program. The total United States defence production-sharing business in Canada during the six years of the program was \$914,700,000.

United States inquiries to Canadian industry increased from 12,858 in 1963 to 19,654 in 1964, and responses by Canadian companies from 2,853 to 3,509. Prime contracts placed by the United States Government with the Canadian Commercial Corporation increased from 1,130 to 1,548, the latter having a total value of \$89,900,000. Subcontracts received directly by Canadian firms increased from 2,075 to 2,445 valued at \$74,800,000. Other prime contracts received directly from the United States Government by Canadian industry and other institutions had a value of \$2,000,000.

In 1964, assistance was given to Canadian industry under the development-sharing program for research and development projects of interest to the United States Services; contracts amounting to \$27,800,000 were issued, with expenditure totalling \$20,000,000.

Co-operation in NATO and RDP (Research, Development and Production) and Exports Overseas.—Canadian industry is encouraged to participate in supplying the defence needs of European and other countries in such areas as aircraft, training and navigational aids and engine spares. During 1964, 77 Canadian firms reported the receipt of \$59,770,000 in prime contracts and subcontracts from 40 NATO and other countries (excluding the United States), although over 90 p.c. of this business came from 11 countries. Of the total, which was an increase of 12 p.c. over 1963, prime contracts accounted for \$48,564,000 and subcontracts placed in Canada by overseas countries for \$11,206,000. The major purchases in this group were for *Caribou*, *Beaver* and *Otter* aircraft, F-104G simulators, rocket launchers and nose-cap assemblies for the NATO M-72 light anti-tank weapon program, navigational equipment for the F-104G aircraft, spares for vehicles, aircraft and aircraft engines, and a contribution to the shared development of the CL-89 surveillance drone.

During 1964, Canadian defence contracts placed in overseas countries on behalf of the Canadian Armed Services amounted to \$43,169,000, consisting of \$24,973,000 in prime contracts and \$18,196,000 in subcontracts, so that Canada benefited from this exchange of defence contracting by \$16,601,000.

PART III.—CIVIL EMERGENCY PLANNING (CIVIL DEFENCE)*

The present arrangements for civil emergency planning in Canada took form in 1958 following an analysis by the Canadian Government of the kind of military and civilian arrangements necessary to prepare the nation for the possibility of nuclear war. This review led to a major rearrangement of federal civil defence functions, together with an offer from the Federal Government to assume certain responsibilities previously borne by provinces and municipalities. The reorganization, which became effective on Sept. 1, 1959, was based on the principles that: (1) civil defence was properly a function or activity of government rather than a separate organization as such, and (2) this function should be divided into clearly defined tasks assigned to the appropriate levels of government, and at each governmental level made the responsibility of those departments or agencies best able to undertake and discharge them.

* Prepared (November 1965) by the Director General of the Emergency Measures Organization, Ottawa.

The Emergency Measures Organization is the federal co-ordinating agency for all civil emergency planning. The Civil Emergency Measures Planning Order (Order in Council PC 1965-1041) dated June 8, 1965, defines the functions of the Emergency Measures Organization, designates it as a department for administrative purposes and places it under the control and supervision of the Minister of Industry. Its functions include:—

- (1) the development of policies and a program to ensure the continuity of government in an emergency;
- (2) the co-ordination of civil emergency planning and training within the Federal Government;
- (3) in conjunction with provincial authorities, the development of policies and a program for the control of civil road transport resources;
- (4) the provision of assistance and guidance to provincial governments and municipalities in respect of the preparation of civil emergency measures in matters that are not the responsibility of a department of the Federal Government;
- (5) the provision of general liaison with other countries and with the North Atlantic Treaty Organization on matters relating to civil emergency measures; and
- (6) the responsibility for the direction and administration of the Canadian Emergency Measures College at Arnprior, Ont.

The Civil Emergency Measures Planning Order also defines the civil emergency powers, duties and functions of the Ministers of federal departments and agencies having immediate responsibilities in the event of a war emergency. Included in this category are the Departments of Agriculture, Defence Production, External Affairs, Finance, Fisheries, Justice, Labour and the National Employment Service, National Defence, National Health and Welfare, Post Office, Public Works, and Transport and the Canadian Broadcasting Corporation and the Royal Canadian Mounted Police.

Certain emergency functions of government are a projection of normal provincial peacetime responsibility. In these fields, provinces and municipalities have more experience and knowledge of local conditions and problems than have the Federal Government and its agencies. The following represent responsibilities of this kind, and are the concern of provincial authorities with such federal assistance as may be necessary:—

- (1) Preservation of law and order and the prevention of panic by the use of provincial and municipal police and special constables, with whatever support is necessary and feasible from the RCMP and the Armed Services at provincial request.
- (2) Control of road traffic, except in areas damaged or covered by heavy fallout, including special measures to assist in the emergency movement of people from areas likely to be attacked or affected by heavy fallout.
- (3) Reception services, including arrangements for providing accommodation, emergency feeding and other emergency supplies and welfare services for people who have lost or left their homes or who require assistance because of the breakdown of normal facilities.
- (4) Organization and control of medical services, hospitals and public health measures.
- (5) Maintenance, clearance and repair of highways.
- (6) Organization of municipal and other services for the maintenance and repair of water and sewerage systems.
- (7) Organization of municipal and other fire fighting services, and control over and direction of these services in wartime, except in damaged or heavy fallout areas, where fire fighting services would be under the direction of the Army as part of the re-entry operation.

CHAPTER XXVII.—OFFICIAL SOURCES OF INFORMATION AND MISCELLANEOUS DATA

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PART I.—OFFICIAL SOURCES OF INFORMATION

Section 1.—Books About Canada

This basic list of books about Canada, contributed by the National Library (December 1965), includes a selection of about 480 titles of publications grouped alphabetically by author and arranged under the subject classifications of Biography, Country and People, Economics, External Relations, Government and Politics, History, Literature and the Arts, and General Reference Works. The selection represents many aspects of Canadian life, emphasizes the latest editions of books published within the past ten years, and includes titles issued in either or both English and French, accompanied by the publisher's address. For additional titles, the reader should consult one or more of the bibliographical collections listed below under the heading "General Reference Works", particularly the monthly or annual editions of *Canadiana* published by the National Library.

Biography

- BARNARD, Julianne. *Mémoires Chapais*. Montréal, Fides, 1961-64. 3 v.
- BEAL, J. R. *The Pearson phenomenon*. Toronto, Longmans, 1964. 210 p.
- BEAVERBROOK, W. M. A., baron. *My early life*. Fredericton, N.B., Brunswick Press, 1965. 199 p. (An Atlantic Advocate book)
- BÉGIN, abbé Émile. *François de Laval*. Québec, Presses de l'Université Laval, 1959. 222 p.
- BENOIT, Pierre. *Lord Dorchester (Guy Carleton)*. Montréal, Éditions H.M.H., 1961. 203 p. (Figures canadiennes, 5)
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- BISHOP, Morris. *Champlain; the life of fortitude*. Toronto, McClelland and Stewart, 1963. 308 p. (Carleton library, no. 4)
- BISHOP, W. A. *The courage of the early morning, a son's biography of a famous father: the story of Billy Bishop*. Toronto, McClelland and Stewart, 1965. 211 p.
- BOUCHARD, T. D. *Mémoires de T. D. Bouchard*. Montréal, Beauchemin, 1960. 3 v.
- BRADDON, Russell. *Roy Thomson of Fleet Street*. London, Collins, 1965. 396 p.
- BROWN, Florence M. *Breaking barriers; Eric Brown and the National Gallery*. Ottawa, Society for Art Publications, 1964. 113 p.
- CAMPBELL, Marjorie Wilkins. *McGillivray, Lord of the Northwest*. Toronto, Clarke, Irwin, 1962. 337 p.
- CAMPBELL, Marjorie Wilkins. *No compromise; the story of Colonel Baker and the CNIB*. Toronto, McClelland and Stewart, 1965. 217 p.

- Canadian writers. Ecrivains canadiens.* A biographical dictionary edited by—un dictionnaire biographique rédigé par Guy Sylvestre, Brandon Conron, and C. F. Klinck. Toronto, Ryerson Press, 1964. 163 p. (Articles on French language authors are in French)
- CARELESS, J. M. S. *Brown of the Globe.* Toronto, Macmillan, 1959-63. 2 v.
- CREIGHTON, Donald. *John A. Macdonald.* Toronto, Macmillan, 1952-55. 2 v.
- DAWSON, R. M. *William Lyon Mackenzie King; a political biography.* Vol. 1, 1874-1923. Vol. 2, 1923-1932 by H. Blair NEATBY. Toronto, University of Toronto Press, 1958-63. 2 v.
- Dictionary of Canadian biography.* General editor, G. W. BROWN. Directeur adjoint, Marcel TRUDEL. Vol. 1. 1000 to 1700. Toronto, University of Toronto Press, 1965. 755 p.
- Dictionnaire biographique du Canada.* General editor, G. W. BROWN. Directeur adjoint, Marcel TRUDEL. T. 1. 1000 à 1700. Québec, Presses de l'Université Laval, 1966. (A paraître en février 1966)
- ECOLE, W. J. *Frontenac, the courtier governor.* Toronto, McClelland and Stewart, 1959. 406 p.
- ECCLES, W. J. *Frontenac.* Traduit par Françoise de Tilly. Montréal, Éditions H.M.H., 1962. 185 p. (Figures canadiennes, 8)
- FOX, W. S. *Sherwood Fox of Western; reminiscences.* Toronto, Burns and MacEachern, 1964. 250 p.
- GAGNON, M. A. *Le ciel et l'enfer d'Arthur Buies.* Québec, Presses de l'Université Laval, 1965. 360 p. (Vie des lettres canadiennes, 2)
- GRAHAM, Roger. *Arthur Meighen; a biography.* Toronto, Clarke, Irwin, 1960-65. 3 v.
- GRAY, J. M. *Lord Selkirk of Red River.* Toronto, Macmillan, 1963. 388 p.
- HARKNESS, Ross. *J. E. Atkinson of the Star.* Toronto, University of Toronto Press, 1963. 390 p.
- JACKSON, A. Y. *A painter's country; autobiography.* Toronto, Clarke, Irwin, 1958. 172 p.
- KILBOURN, William. *The Firebrand; William Lyon Mackenzie and the rebellion in Upper Canada.* Toronto, Clarke, Irwin, 1956. 283 p.
- LAMONTAGNE, Roland. *La Galissonière et le Canada.* Montréal, Presses de l'Université de Montréal, 1962. 104 p.
- LA ROQUE DE ROQUEBRUNE, Robert. *Testament de mon enfance.* 2e éd. Montréal, Fides, 1958. 182 p. (Collection du Néauphar)
- LA ROQUE DE ROQUEBRUNE, Robert. *Testament of my childhood.* Translated by Felix WALTER. Toronto, University of Toronto Press, 1964. 160 p. (Canadian university paperbooks, 20)
- MACKENZIE, Sir Alexander. *First man west; Alexander Mackenzie's journal of his voyage to the Pacific Coast of Canada in 1793.* Edited by Walter SHEPPE. Montreal, McGill University Press, 1963. 366 p.
- McNAUGHT, Kenneth. *A prophet in politics; a biography of J. S. Woodsworth.* Toronto, University of Toronto Press, 1959. 339 p.
- MASSEY, Vincent. *What's past is prologue; memoirs.* Toronto, Macmillan, 1963. 540 p.
- OSLER, E. B. *The man who had to hang, Louis Riel.* Toronto, Longmans, 1961. 320 p.
- OSLER, E. B. *Louis Riel, un homme à pendre.* Traduit de l'anglais par Rossel VIEN. Montréal, Éditions du Jour, 1964. 295 p. (Collection L'Histoire vivante, 2)
- Our living tradition.* First to fifth series. Toronto, University of Toronto Press, 1957-65. 5 v. in 4. (Public lectures given at Carleton University on prominent Canadians)
- POPE, Sir Joseph. *Public servant; the memoirs of Sir Joseph Pope.* Edited and completed by Maurice POPE. Toronto, Oxford University Press, 1960. 312 p.
- POPE, Maurice. *Soldiers and politicians; memoirs.* Toronto, University of Toronto Press, 1962. 462 p.
- SCHULL, J. J. *Laurier: the first Canadian.* Toronto, Macmillan, 1965. 658 p.
- SÉVIGNY, Pierre. *Le grand jeu de la politique.* Montréal, Éditions du Jour, 1965. 347 p. (Collection Essais, S-2)
- SÉVIGNY, Pierre. *This game of politics.* Toronto, McClelland and Stewart, 1965. 324 p.
- SHRIVE, F. N. *Charles Mair: literary nationalist.* Toronto, University of Toronto Press, 1965. 309 p.
- SIMCOE, Elizabeth P. *Diary.* Edited by Mary Quayle INNIS. With illus. from the original ms. Toronto, Macmillan, 1965. 223 p.
- SISSONS, C.B. *Nil alienum; the memoirs of C. B. Sissons.* Toronto, University of Toronto Press, 1964. 260 p.
- SKELTON, O. D. *Life and letters of Sir Wilfrid Laurier.* Ed. by D. M. L. FARR. (Abridged ed.) Toronto, McClelland and Stewart, 1965. 2 v. (Carleton library, no. 21-22)
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- STEWART, Margaret, and FRENCH, Doris. *Ask no quarter; a biography of Agnes Macphail*. Toronto, Longmans, 1959. 311 p.
- THOMSON, D. C. *Alexander Mackenzie, clear Grit*. Toronto, Macmillan, 1960. 436 p.
- WALLACE, Elizabeth. *Goldwin Smith, Victorian liberal*. Toronto, University of Toronto Press, 1957. 297 p.
- WALLACE, W. S., ed. *The Macmillan dictionary of Canadian biography*. 3d ed. Toronto, Macmillan, 1963. 822 p.
- WATKINS, E. R. B. Bennett, *a biography*. Toronto, Kingswood House, 1963. 271 p.
- Who's who in Canadian Jewry, 1965*. Compiled by the Canadian Jewish Literary Foundation. Montreal, Jewish Institute of Higher Research, Central Rabbinical Seminary of Canada, 1965. 525 p.

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- ANGERS, Pierre. *Problèmes de culture au Canada français*. Montréal, Beauchemin, 1960. 117 p.
- ARSENAULT, Bona. *Histoire et généalogie des Acadiens*. Québec, Conseil de la vie française en Amérique, 1965. 2 v.
- BABBITT, J. D., ed. *Science in Canada*. Selections from the speeches of E. W. R. STEACIE. Toronto, University of Toronto Press, 1965. 198 p.
- BIRD, W. R. *These are the Maritimes*. Toronto, Ryerson Press, 1959. 333 p.
- BLANCHARD, Raoul. *Le Canada français*. Paris, Fayard, 1960. 316 p. (Les Temps et les destins)
- BLISHEN, B. R., ed. *Canadian society, sociological perspectives*. Toronto, Macmillan, 1961. 622 p.
- BOULIZON, Guy, et ADAMS, Geoffrey. *Canada, 20ème siècle—20th century*. Texte français de Guy BOULIZON. English text by Geoffrey ADAMS. Paris, Éditions de la Pensée moderne; Montréal, Beauchemin, 1964. 1 v.
- BRUNET, Michel. *Canadians et Canadiens; études sur l'histoire et la pensée des deux Canadas*. Montréal, Fides, 1960. 175 p. (Bibliothèque économique et sociale)
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- CASTEL, J. G. *The civil law system of the Province of Quebec*. Toronto, Butterworth, 1961. 613 p.
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- CLARK, S. D. *The developing Canadian community*. Toronto, University of Toronto Press, 1962. 248 p.
- CLARK, S. D., ed. *Urbanism and the changing Canadian society*. Toronto, University of Toronto Press, 1961. 150 p.
- CORTE, Marcel de. *J'aime le Canada français*. Québec, Presses de l'Université Laval, 1960. 77 p.
- COWAN, Helen I. *British emigration to British North America; the first hundred years*. Rev. ed. Toronto, University of Toronto Press, 1961. 321 p.
- DESBARATS, P. H. *The state of Quebec; a journalist's view of the quiet revolution*. Toronto, McClelland and Stewart, 1965. 188 p.
- DEVOLPI, C. P., and WINKWORTH, P. S., comps. *Montréal; recueil iconographique—a pictorial record... 1535-1885*. Montreal, Dev-Sco Publications, 1963. 2 v.
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- DEVOLPI, C. P., comp. *Toronto, a pictorial record; historical prints and illustrations of the City of Toronto... 1813-1882*. Montreal, Dev-Sco Publications, 1965. 259 p.

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- EGGLESTON, Wilfrid. *The Queen's choice; a story of Canada's capital*. Ottawa, Queen's Printer, 1961. 325 p.
- EGGLESTON, Wilfrid. *Choix de la Reine; étude sur la capitale du Canada*. Ottawa, Imprimeur de la Reine, 1961. 342 p.
- ELKIN, Frederick. *The family in Canada; an account of present knowledge and gaps in knowledge about Canadian families*. Ottawa, Canadian Conference on the Family, 1964. 192 p.
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- CANADIAN CULTURAL INFORMATION CENTRE. *Canadian cultural publications. Publications culturelles canadiennes*. 13th ed. Ottawa, 1965. Annual. Annuel. (Text bilingual)
- CANADIAN CULTURAL INFORMATION CENTRE. *Some Canadian cultural organizations. Certaines organisations culturelles canadiennes*. Ottawa, 1965. 72 p. (Text bilingual)
- The Canadian dictionary; French-English, English-French*. Concise ed. Toronto, McClelland and Stewart, 1962. 861 p.
- Dictionnaire canadien; français-anglais, anglais-français*. Éd. abrégée. Toronto, McClelland and Stewart, 1962. 861 p.
- Canadian hospital directory*. Toronto, Canadian Hospital Association. Annual.
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- Canadian periodical index. Index de périodiques canadiens*. Ottawa, Canadian Library Association. Association canadienne des bibliothèques. Monthly. Mensuel.
- Encyclopedia Canadiana*. Rev. ed. Ottawa, The Canadian Company, 1962. 10 v.
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- MCGILL UNIVERSITY, Montreal. Library. *The Lawrence Lande Collection of Canadiana; a bibliography*. Collected, arranged and annotated by Lawrence LANDE. Montreal, Lawrence Lande Foundation for Canadian Historical Research, 1965. 301 p.
- PEEL, Bruce, comp. *A bibliography of the Prairie Provinces to 1953*. Toronto, University of Toronto Press, 1956. 680 p. Supplement. Toronto, University of Toronto Press, 1963. 130 p.
- PRIESTLEY, F. E. L. *The humanities in Canada; a report prepared for the Humanities Research Council of Canada*. Toronto, University of Toronto Press, 1964. 246 p. (Bibliography of scholarly publications, p. 98-246)
- ROY, G. R., and GNAROWSKI, Michael, comps. *Canadian poetry; a supplementary bibliography*. Québec, Culture, 1964. 13 p. (Intended as a supplement to existing bibliographies, notably to *A check list of Canadian literature and background materials, 1628-1950*, by R. E. WATTERS)
- Slavica Canadiana*. 1964. Winnipeg, Canadian Association of Slavists, 1965. 64 p. (Slavistica, 55)
- TANGHE, Raymond. *Bibliography of Canadian bibliographies*. Toronto, University of Toronto Press, 1960. 206 p. With biennial supplements.
- TANGHE, Raymond. *Bibliographie des bibliographies canadiennes*. Toronto, University of Toronto Press, 1960. 206 p. Avec suppléments biennaux.
- URQUHART, M. C., and BUCKLEY, K. A. H. *Historical statistics of Canada*. Cambridge, Eng., University Press; Toronto, Macmillan, 1965. 672 p.
- WATTERS, R. E., comp. *A check list of Canadian literature, and background material, 1628-1950*. Toronto, University of Toronto Press, 1960. 789 p.

Section 2.—Federal Government Information Services

The chief source of statistical information on all phases of the economy of Canada is the Dominion Bureau of Statistics where the ten-year and five-year censuses of Canada are planned and statistical information of all kinds—federal and provincial—is centralized. Certain areas of effort, such as trade and commerce, customs and excise, currency and banking, navigation, transportation, radio, population and national defence are constitutionally federal affairs and on such subjects the respective departments at Ottawa are the proper sources of information with which to communicate. Other fields of effort such as the administration of lands and natural resources, education, roads and highways, and health and hospitals are the responsibility of the provinces and data may be obtained concerning the individual provincial efforts in these fields from the respective provincial government departments. However, certain federal departments are also concerned with specific aspects of these subjects and, as in the case of the Dominion Bureau of Statistics, in the co-ordination and presentation of the material for Canada as a whole. The Government of Canada, while not administering the resources within the provincial boundaries, co-operates closely with the provinces and is in a position to furnish material for Canada, especially production data on a national basis, marketing data on international, national and provincial bases, research work and experimental station data on a national basis, and also on a provincial basis from Federal Government stations located within particular provinces. In agriculture, for instance, data on the breeding of livestock and the improvement of strains, on agricultural marketing and on crop yields are cases in point; in forestry, questions on forest research, forest fire protection and reforestation offer good examples.

Certain Federal Government bodies and national agencies, because of the nature of their work and the appeal it has to broad sections of the population, are organized primarily as information or publicity agencies. Among these are: the Information Division, Department of External Affairs, which deals with questions about external affairs originating in Canada and with general requests originating abroad for information on Canada and Canadian affairs; the Trade Publicity Branch, Department of Trade and Commerce; the Information Services Division, Department of National Health and Welfare; the Canadian Broadcasting Corporation; and the National Film Board. The Departments of Agriculture, Fisheries, Forestry, Northern Affairs and National Resources, and Mines and Technical Surveys, and such agencies as the National Gallery of Canada, the National Museum of Canada, the National Library, and the National Research Council, while not thus classed, are interested in the dissemination of information to a greater extent than most of the remaining government departments, although several of the latter have publicity branches.

Thus, inquiries for information of a statistical nature should be forwarded to the Information Division, Dominion Bureau of Statistics, Ottawa. Inquiries to federal sources for information not of a statistical nature should be sent as a general rule to the individual departments and agencies of government which are listed, with their functions, at pp. 118-137 of this publication. Inquiries relating to provincial efforts may be directed to the provincial government department concerned. Inquiries about the Yukon and Northwest Territories should be addressed to the Northern Administration Branch, Department of Northern Affairs and National Resources,* Ottawa.

Section 3. —Sale of Official Publications

Under the provisions of the Public Printing and Stationery Act, the Queen's Printer, Ottawa, has charge of the sale of all official publications of Parliament and the Government of Canada that are issued to the public, as well as of the free distribution of all public documents and papers to persons and institutions (libraries) entitled by statutory provisions to

* To be changed to the Department of Indian and Northern Affairs (see p. 1162).

receive them. The regulations relating to the distribution and sale of government publications made in accordance with the provisions of Sect. 7 of the Public Printing and Stationery Act and Sect. 7(e) of the Financial Administration Act were brought up to date and approved by Treasury Board on Mar. 31, 1955.

In compliance with these regulations, the Queen's Printer issues the *Daily Checklist of Government Publications* which records for the information of the public service, libraries, etc., all Federal Government publications immediately upon release. Those authorized by law or regulation to receive free copies of government publications receive the *Daily Checklist* without charge; others desiring the service may purchase an annual subscription to be forwarded daily or in weekly batches as requested.

The Queen's Printer also issues the *Monthly Catalogue of Canadian Government Publications*, a comprehensive listing of all official publications, public documents and papers not of a confidential nature published at government expense, an *Annual Catalogue* (in January) listing all publications issued during the previous year, as well as sectional catalogues and selected titles bulletins advertising new government publications.

The Queen's Printer is the national sales agent in Canada for publications issued by the United Nations; the United Nations Educational, Scientific and Cultural Organization; the World Health Organization; the Food and Agriculture Organization; the Organization for Economic Co-operation and Development; the International Atomic Energy Agency; the International Civil Aviation Organization; the Council of Europe; the Commonwealth Economic Committee; the Organization of American States (Pan American Union); the General Agreement on Tariffs and Trade; the New Zealand Government; the International Labour Organization; the World Meteorological Organization; and the International Telecommunication Union.

Canadian Government and international organizations publications may be obtained from Queen's Printer bookstores located in Ottawa, Toronto, Montreal, Winnipeg and Vancouver (see imprint on the reverse side of the title page), or by mail from the Queen's Printer, Ottawa.

Dominion Bureau of Statistics Publications.—The Dominion Bureau of Statistics acts as the agent of the Queen's Printer with respect to the sale of DBS publications. Reports of the Bureau cover all aspects of the national economy; the *Canada Year Book* and *Official Handbook Canada* constitute authoritative compendiums of information on the institutions and economic and social development of Canada.

DBS publications are listed with their prices in the Queen's Printer's Catalogues of *Canadian Government Publications*. The DBS *Daily Bulletin* and *Weekly Bulletin*, prepared by the Information Division, are designed to serve persons wishing to keep closely informed on the full range of published information issued by the Bureau; the annual subscription price of each is \$1. Subscription orders for DBS publications or orders for single copies should be addressed to the Publications Distribution Unit, Dominion Bureau of Statistics, Ottawa, and should contain the necessary remittance in the form of a cheque or money order made payable to the Receiver General of Canada.

Provincial Government Publications.—Most provincial government publications may be obtained from the Queen's Printer of the province concerned. Inquiries should be addressed to the provincial capital cities:—

Newfoundland.....	St. John's
Prince Edward Island...	Charlottetown
Nova Scotia.....	Halifax
New Brunswick.....	Fredericton
Quebec.....	Quebec

Ontario.....	Toronto
Manitoba.....	Winnipeg
Saskatchewan.....	Regina
Alberta.....	Edmonton
British Columbia.....	Victoria

DIRECTORY OF SOURCES OF OFFICIAL INFORMATION

Although a number of references have been made throughout this volume to the Directory of Sources of Official Information, normally included in this Chapter, it has been considered advisable to omit the Directory from the current edition in view of impending changes in designation of several Federal Government Departments and the rather extensive re-arrangement of duties among them. At the time of printing, these revisions had been announced but not as yet implemented. Reference is made to the Directory in the 1965 edition at pp. 1117-1149 in which only minor changes were indicated by the end of 1965. A complete revision will appear in the 1967 issue.

PART II.—SPECIAL MATERIAL PUBLISHED IN FORMER EDITIONS OF THE CANADA YEAR BOOK

It is not possible to include in any single edition of the Year Book all articles and descriptive text of previous editions. Therefore the following list has been compiled as an index to such miscellaneous material and special articles as are not repeated in the present edition. This list links up the Year Book with its predecessors in respect of matters that have not been subject to wide change. Those Sections of Chapters, such as "Population", which are automatically revived when later census material is made available and to which adequate references are made in the text, are not listed unless they are in the nature of special contributions. The latest published article on each subject is shown, except when an earlier article includes material not repeated in the later one. When an article covers more than one subject it is listed under each appropriate heading.

The articles marked with an asterisk (*) are available in reprint form from the Information and Public Relations Division, Dominion Bureau of Statistics.

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The Board of Grain Commissioners.....	W. J. MACLEOD.....	1960	957-958
The Canadian Wheat Board and its Role in Grain Marketing.....	C. B. DAVIDSON.....	1960	958-960
The National Agricultural Program.....	S. C. BARRY.....	1961	399-402
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Agriculture in the Canadian Economy, 1964..	—	1965	440-446
Art, Literature and the Press—			
*The Democratic Functioning of the Press....	W. A. BUCHANAN.....	1945	744-748
Report of the Royal Commission on National Development in the Arts, Letters and Sciences.....	—	1952-53	342-345
*A History of Canadian Journalism, 1752- (circa) 1900.....	W. H. KESTERTON.....	1957-58	920-934
*A History of Canadian Journalism (circa) 1900-1958.....	W. H. KESTERTON.....	1959	883-902
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Banking and Finance—			
The Bank of Canada and its Relation to the Financial System.....	—	1937	881-885

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*The Climate of Canada (textual material appears in the 1959 Year Book and the tabular data in the 1960 edition but the reprint includes both textual and tabular data).....	C. C. BOUGHNER and M. K. THOMAS.....	1959 { 1960	23-51 31-77
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*History and Development of the Canadian Broadcasting Corporation.....	AUGUSTIN FRIGON.....	1947	737-740
*A History of Canadian Journalism, 1752-(circa) 1900.....	W. H. KESTERTON.....	1957-58	920-934
*A History of Canadian Journalism (circa) 1900-1958.....	W. H. KESTERTON.....	1959	883-902
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*The Privy Council Office and Cabinet Secretariat in Relation to the Development of Cabinet Government.....	W. E. D. HALLIDAY.....	1956	62-70
*Amendment of the Canadian Constitution...	J. R. MALLORY.....	1961	51-57
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PART III.—REGISTER OF OFFICIAL APPOINTMENTS*

The following list includes official appointments for the period Dec. 16, 1964 to Dec. 31, 1965,† continuing the list published in the 1965 Year Book at pp. 1154-1160. Appointments to the Governor General's Staff, judicial appointments and appointments of limited or local importance are not included.

Queen's Privy Council for Canada.—1965. *Feb. 15*, Léo Alphonse Joseph Cadieux, St. Antoine des Laurentides, Que.: to be a member. *July 7*, Lawrence T. Pennell, Brantford, Ont.; and Jean-Luc Pépin, Drummondville, Que.: to be members. *Oct. 25*, Hon. Alan Aylesworth Macnaughton, Montreal, Que.: to be a member. *Dec. 18*, Jean Marchand, Quebec, Que.; John James Greene, Arnprior, Ont.; Joseph-Julien-Jean-Pierre Côté, Longueuil, Que.; and John Napier Turner, Montreal, Que.: to be members.

Governor General.—1965. *July 14*, General The Right Honourable Georges Vanier: to continue as Governor General for an indefinite period.

Lieutenant-Governors.—1965. *June 1*, Hon. John Babbitt McNair, Fredericton, N.B.: to be Lieutenant-Governor of the Province of New Brunswick. *July 2*, Richard S. Bowles, Winnipeg, Man.: to be Lieutenant-Governor of the Province of Manitoba. *Sept. 10*, J. Percy Page, Edmonton, Alta.: to continue as Lieutenant-Governor of Alberta to Dec. 31, 1965. *Dec. 17*, J. W. Grant MacEwan, Calgary, Alta.: to be Lieutenant-Governor of the Province of Alberta.

Cabinet Appointments.—1965. *Feb. 15*, Hon. Lucien Cardin: to be Minister of Public Works. Hon. John Robert Nicholson: to be Minister of Citizenship and Immigration. Hon. René Tremblay: to be Postmaster General. Hon. Léo Alphonse Joseph Cadieux: to be Associate Minister of National Defence. *July 7*, Hon. George James McIlraith: to be Minister of Public Works. Hon. Lucien Cardin: to be Minister of Justice and Attorney General. Hon. John Watson MacNaught: to be Minister of Mines and Technical Surveys. Hon. Guy Favreau: to be President of the Queen's Privy Council for Canada. Hon. Lawrence T. Pennell and Hon. Jean-Luc Pépin: to be members of the Administration. Hon. Lawrence T. Pennell: to be Solicitor General of Canada. *Dec. 18*, Hon. Jean Marchand: to be Minister of Citizenship and Immigration. Hon. John James

* Extracts from the *Canada Gazette*, with some additions. All academic and honorary degrees and military honours have been omitted.

† Certain appointments made during January 1966 are given in the Appendix, pp. 1162-1163.

Greene: to be Minister of Agriculture. Hon. Joseph-Julien-Jean-Pierre Côté: to be Postmaster General. Hon. John Napier Turner: to be a member of the Administration. Hon. Mitchell Sharp: to be Minister of Finance and Receiver General. Hon. Allan Joseph MacEachen: to be Minister of National Health and Welfare. Hon. Judy LaMarsh: to be Secretary of State. Hon. John Robert Nicholson: to be Minister of Labour. Hon. Jean-Luc Pépin: to be Minister of Mines and Technical Surveys.

Senate Appointments.—1965. *July 7*, Hon. William Moore Benidickson, Kenora, Ont.: to be a Senator for the Province of Ontario. *Aug. 13*, Alexander Hamilton McDonald, Regina, Sask.: to be a Senator for the Province of Saskatchewan.

Parliamentary Secretaries.—1965. *Mar. 2*, Hubert Badarau: to the Minister of Citizenship and Immigration. Bruce S. Beer: to the Minister of Agriculture and the Minister of Forestry, jointly. Alexis Caron: to the Postmaster General. Stanley Haidasz: to the Secretary of State for External Affairs. G. Roy McWilliam: to the Minister of Public Works. John C. Munro: to the Minister of National Health and Welfare. John B. Stewart: to the Secretary of State of Canada. *July 16*, J. J. Jean Chrétien: to the Prime Minister. David G. Hahn: to the Minister of Industry. Bryce S. Mackasey: to the Minister of National Health and Welfare. Jean-Charles Cantin: to the Minister of Justice. Donald S. Macdonald: to the Minister of Finance. John C. Munro: to the Minister of Trade and Commerce.

Deputy Ministers.—1964. *Dec. 22*, Raymond-Clément Labarge, Ottawa, Ont.: to be Deputy Minister of National Revenue for Customs and Excise from Jan. 5, 1965. 1965. *Sept. 1*, John Neilson Crawford, Assistant Deputy Minister of Veterans Affairs (Treatment): to be Deputy Minister of National Health and Welfare (Health), from Sept. 10, 1965. *Dec. 30*, Tom Kent, Ottawa, Ont.: to be Deputy Minister of Citizenship and Immigration from Jan. 1, 1966. C. M. Isbister, Ottawa, Ont.: to be Deputy Minister of Mines and Technical Surveys from Jan. 1, 1966.

Diplomatic Appointments.—1964. The following diplomatic appointments were announced during the year. R. P. Bower, Ambassador to Japan: to be concurrently (first) Ambassador to the Republic of Korea. E. W. T. Gill: to be Ambassador to Ireland. Gordon Gale Crean, Ambassador to Italy: to be concurrently High Commissioner to Malta. 1965. John Harrison Cleveland, High Commissioner in Nigeria: to be concurrently High Commissioner in Sierra Leone and Ambassador to Dahomey, Niger and Senegal. Keith William MacLellan: to be Canadian Commissioner on the International Commission for Supervision and Control in Laos. Thomas Paul Malone, Ambassador to Iran: to be concurrently Ambassador to Iraq. Hon. Roland Michener, High Commissioner in India: to be concurrently Ambassador to Nepal. C. J. Webster: to be Canadian Commissioner on the International Control Commission for Cambodia. John Ryerson Maybee, Ambassador to Lebanon: to be concurrently Ambassador to Jordan. G. C. McInnes: to be Permanent Delegate to UNESCO. Bertram Charles Butler: to be High Commissioner in Malaysia and concurrently Ambassador to Burma and Thailand. Charles Eustace McGaughey: to be High Commissioner to Ghana and concurrently Ambassador to Ivory Coast, Upper Volta, Togo and Guinea. Malcolm Norman Bow, Ambassador to Czechoslovakia: to be concurrently (first) Ambassador to Hungary. John Ryerson Maybee, Ambassador to Lebanon and Jordan: to be concurrently Ambassador to Syria. Arthur Julian Andrew: to be Ambassador to Sweden. Robert Louis Rogers: to be Ambassador to Israel. Thomas Paul Malone, Ambassador to Iran and Iraq: to be concurrently Ambassador to Kuwait. Georges-Henri Blouin: to be Ambassador to the Cameroon. Ralph Edgar Collins: to be Ambassador to the United Arab Republic. Charles James Woodsworth: to be Ambassador to the Republic of South Africa. Georges-Henri Blouin: to be Ambassador to the Central African Republic, Chad, Congo (Brazzaville) and Gabon. Ralph Edgar Collins: to be Ambassador to the Sudan. Raymond Harry Jay: to be High Commissioner in Jamaica. T. Wainman-Wood: to be High Commissioner to Cyprus. A. S. McGill: to be High Commissioner to Tanzania, Kenya and Uganda. Victor Campbell Moore: to be Canadian

Commissioner to the International Commission for supervision and control in Viet-Nam. Arthur Redpath Menzies: to be High Commissioner in Australia. Joseph-François-Xavier Houde: to be Ambassador to Peru, with concurrent accreditation to Bolivia. Norman Frederick Henderson Berlis: to be Ambassador to Poland. Ross Campbell, Ambassador to Yugoslavia: to be concurrently Ambassador to Algeria. John Clemence Brown: to be Ambassador to the Congo (Leopoldville). Michel Gauvin: to be (first) Ambassador to Ethiopia.

National Defence Appointments.—1965. *Sept. 1*, Lieutenant-General Robert Moncel: to be Vice-Chief of the Defence Staff.

Government Appointments to Miscellaneous Boards, Commissions, etc.

Advisory Commission on the Development of Government in the Northwest Territories.—1965. *June 3*, A. W. R. Carrothers, London, Ont.: to be a member and Chairman. Jean Beetz, Montreal, Que., and John W. Parker, Yellowknife, N.W.T.: to be members.

Air Canada.—1965. *Nov. -1*, Roderick Hugh McIsaac, Winnipeg, Man.: to be a Director until Sept. 30, 1968.

Air Transport Board.—1964. *Dec. 17*, Gérald Morisset, Kingsmere, Que.: to be again a member for 10 years commencing Jan. 21, 1965. **1965.** *Aug. 4*, Gérald Morisset: to be Chairman. *Aug. 11*, John Rashleigh Belcher, Ottawa, Ont.: to be a member and Vice-Chairman for 10 years.

Atlantic Development Board.—1965. *Jan. 20*, Carl Frederick Burke, Maxwell Barry and Stephen A. Dolhanty: to be again members for three years from Jan. 24, 1965. Stephen Weyman, Saint John, N.B.: to be a member for three years from Jan. 24, 1965.

Atomic Energy Control Board.—1965. *Mar. 4*, W. M. Gilchrist, President of Eldorado Mining and Refining Limited, and J. L. Gray, President of Atomic Energy of Canada Limited: to be members for three years from Apr. 1, 1965.

Bank of Canada.—1965. *Mar. 3*, William F. Ryan, Fredericton, N.B., Arthur J. E. Child, Saskatoon, Sask., and Alexander Walton, Vancouver, B.C.: to be members of the Board of Directors.

Board of Broadcast Governors.—1965. *Apr. 13*, Keir Clark, Montague, P.E.I.: to be a part-time member for five years.

Board of Grain Commissioners for Canada.—1965. *July 14*, Charles Lemuel Shuttleworth: to be a Commissioner from July 15, 1965.

Board of Steamship Inspection.—1965. *Nov. 22*, Herbert Ogg Buchanan, a member: to be Chairman.

Board of Trustees of the Maritime Transportation Unions.—1965. *Feb. 11*, René Lippe, Montreal, Que.: to be Chairman from Feb. 12, 1965. Joseph MacKenzie, Ottawa, Ont.: to be a member from Feb. 12, 1965.

Canada Council.—1965. *Apr. 13*, Jean Boucher, Ottawa Ont.: to be Director from Apr. 15, 1965. Peter Dwyer, Ottawa, Ont.: to be Associate Director from Apr. 15, 1965. *May 25*, Trevor Frank Moore, Toronto, Ont., and Samuel Steinberg, Montreal, Que.: to be again members for three years. Wilfrid P. Gregory, Stratford, Ont., Charles Forsyth, Sackville, N.B., and Gilles Pelletier, Montreal, Que.: to be members for three years. *July 23*, Mrs. Stanley Dowhan, Canmore, Alta., and Ignatius A. Rumboldt, St. John's, Nfld.: to be members.

Canadian Broadcasting Corporation.—1964. *Dec. 15*, Stephanie Potoski, Yorkton, Sask.; André Raynauld, Montreal, Que.; and E. B. Osler, Winnipeg, Man.: to be Directors for three years. **1965.** *Feb. 23*, James MacDonald Richardson Beveridge, Wolfville, N.S.: to be a Director for three years. *Oct. 11*, J. Alphonse Ouimet, Ottawa, Ont.: to be again President.

Canadian Commercial Corporation.—1965. *May 13*, Robert McDougall Keith, Assistant Deputy Minister, Finance and Administration, Department of Defence Production: to be a Director. *Dec. 8*, Ralph MacDonald Trites: to be President.

Canadian Maritime Commission.—1965. *Feb. 9*, H. J. Darling: to be a member and to be Chairman for one year from Feb. 21, 1965. J. C. Rutledge, Ottawa, Ont.: to be a member from Feb. 25, 1965.

Canadian National Railways.—1965. *Feb. 18*, Renault St-Laurent, Quebec, Que.: to be a Director until Sept. 30, 1967. *Nov. 1*, James Raymond Griffith, Saskatoon, Sask.; Robert Arthur Brown, Calgary, Alta., and Chesley A. Pippy, St. John's, Nfld.: to be again Directors until Sept. 30, 1968.

Canadian Overseas Telecommunication Corporation.—1965. *May 13*, Douglas F. Bowie: to be again President and General Manager for seven years from Aug. 1, 1965.

Canadian Pension Commission.—1965. *Feb. 4*, Stephen G. Mooney: to be a Commissioner from Oct. 1, 1965 to Apr. 18, 1968. Ulric Blier: to be a Commissioner from Nov. 15, 1965 to Dec. 28, 1971. *May 4*, Noel S. Knapp, Ottawa, Ont.: to be an *ad hoc* member for one year from May 10, 1965. *June 3*, James Malcolm Cameron, New Glasgow, N.S.: to be an *ad hoc* member for one year from July 1, 1965. *Aug. 11*, James Anderson Forrester: to be an *ad hoc* member for one year from Oct. 1, 1965. *Sept. 1*, James Gordon Fyfe, Calgary, Alta.: to be a member for ten years from Oct. 1, 1965. *Oct. 4*, John Fabian Bates: to be again an *ad hoc* member from Nov. 28, 1965 to Jan. 12, 1966. *Dec. 29*, William Andrew Gilmour, Penticton, B.C.: to be again an *ad hoc* member for one year from Jan. 1, 1966.

Canadian Wheat Board.—1965. *Aug. 13*, J. B. Lawrie: to be Assistant Chief Commissioner from Oct. 1, 1965. D. H. Treleaven, Hanley, Sask., and R. L. Kristjanson, Gimli, Man.: to be Commissioners from Oct. 1, 1965. *Nov. 22*, Roy R. Atkinson, Landis, Sask.: to be a member of the Advisory Committee.

Centennial Commission.—1965. *May 4*, Archie Robert Micay, Winnipeg, Man.: to be a Director.

Central Mortgage and Housing Corporation.—1965. *Mar. 5*, A. F. Laidlaw, Ottawa, Ont.: to be again a member of the Board of Directors for three years from Apr. 1, 1965. Mrs. Jean Newman, Toronto, Ont.: to be a member of the Board of Directors for three years from Apr. 1, 1965. *July 7*, Jean Lupien, Vice-President: to be a member of the Board of Directors. H. C. Linkletter and Ian MacLennan: to be Vice-Presidents.

Civil Service Commission.—1965. *Apr. 13*, Sylvain Cloutier, Ottawa, Ont.: to be a member for ten years from Apr. 15, 1965. *July 30*, John J. Carson, Vancouver, B.C.: to be Chairman from Sept. 1.

Defence Research Board.—1965. *Mar. 9*, Walter Raymond Trost, Halifax, N.S., Roger Gaudry, Montreal, Que., and Gordon Hunter, Ottawa, Ont.: to be again members for three years from Apr. 1, 1965. *June 15*, Archie Munro Pennie: to be a member for three years from July 1, 1965. *Aug. 11*, Henry Edmison Duckworth, Vice-President (Development) of the University of Manitoba: to be a member for three years from Sept. 1, 1965.

Dominion Council of Health.—1965. *Oct. 25*, C. G. More, Red Deer, Alta.: to be a member for three years. *Nov. 1*, Armand Frappier, Montreal, Que.: to be again a member

for three years. *Nov. 26*, Mrs. Simone David Raymond, Montreal, Que., and Mrs. Marjorie Holmes, Orangeville, Ont.: to be members for three years.

Eastern Rockies Forest Conservation Board.—1965. *Feb. 5*, J. D. B. Harrison, Ottawa, Ont.: to be a member, representing the Federal Government.

Export Credits Insurance Corporation.—1965. *May 4*, C. L. Read, Director of the Government Finance Division, Dept. of Finance, and A. W. Thomas, Vice-President of the Corporation: to be Directors. H. Hallworth, Saint John, N.B.: to be a member of the Advisory Council, until Dec. 31, 1969.

Farm Credit Corporation.—1965. *Apr. 29*, Alexander T. Davidson, Assistant Deputy Minister (Rural Development), Dept. of Forestry; Stanislas-J. Chagnon, Associate Deputy Minister, Dept. of Agriculture; and Ernest A. Oestreicher, Director, Resources and Development, Dept. of Finance: to be members for one year.

Fisheries Prices Support Board.—1965. *Mar. 25*, Bernard Blais, Quebec, Que.: to be a member.

Fisheries Research Board of Canada.—1966. *Jan. 1*, Léo-E. Marion, Ottawa, Ont.; W. S. Hoar, Vancouver, B.C.; and M. O. Morgan, St. John's, Nfld.: to be members for five years.

Historic Sites and Monuments Board of Canada.—1965. *Apr. 2*, James John Talman, London, Ont.: to be again a member for three years ending Mar. 15, 1968. *Apr. 29*, Charles Bruce Fergusson, Halifax, N.S.: to be again a member for three years and to be Chairman for the same period. Richard Y. Secord, Edmonton, Alta.: to be again a member for three years. *May 4*, Gerald Keith, Lancaster, N.B.: to be a member for three years.

International Commission for the Northwest Atlantic Fisheries.—1965. *Mar. 25*, H. Douglas Pyke, Lunenburg, N.S.: to be a Commissioner for two years from May 28, 1965. Paul P. Russell, St. John's, Nfld.: to be a Commissioner from May 30, 1965 to Jan. 31, 1966.

International Joint Commission.—1965. *Dec. 29*, Donald McGregor Stephens: to be again a Commissioner from Jan. 1, 1966 to Dec. 31, 1967. René Dupuis: to be again a Commissioner from Feb. 23, 1966 to Feb. 22, 1968.

International North Pacific Fisheries Commission.—1965. *Sept. 1*, James Cameron, Madeira Park, B.C., and Carl Giske, Prince Rupert, B.C.: to be members for Canada for a further two years.

International Pacific Halibut Commission.—1965. *Dec. 8*, Martin K. Eriksen, Prince Rupert, B.C.: to be again a member until Oct. 31, 1967.

Municipal Development and Loan Board.—1964. *Dec. 17*, J. F. Parkinson, Economic Adviser to the Deputy Minister of Finance: to be a member and Chairman.

National Advisory Council on Fitness and Amateur Sport.—1965. *Jan. 6*, James Worrall, Toronto, Ont., a member: to be Chairman from Jan. 11, 1965 to Dec. 31, 1965. *Dec. 23*, Edgar House, St. John's, Nfld.; Claire Buckley, Halifax, N.S.; John Meagher, Fredericton, N.B.; Kenneth Farmer, Montreal, Que.; René Bélisle, Montreal, Que.; Georges Labrecque, Quebec, Que.; Louis Chassé, Quebec, Que.; Robert Pépin, Drummondville, Que.; Lucille (Wheeler) Vaughan, Ottawa, Ont.; Charles Rathgeb, Toronto, Ont.; William Potter, Niagara Falls, Ont.; Mrs. David Ouchterlony, Toronto, Ont.; W. Arthur Johnston, Winnipeg, Man.; and Robert Freeze, Calgary, Alta.: to be members for one year ending Dec. 31, 1966.

National Advisory Council on the Rehabilitation of Disabled Persons.—1965. *Apr. 13*, James L. Melville, Ottawa, Ont.: to be a member and Chairman until Dec. 31,

1965. *Nov. 22*, Duncan W. Rogers, Edmonton, Alta.; George R. F. Elliot, Vancouver, B.C.; Kenneth O. Mackenzie, Winnipeg, Man.; Yvon Melanson, Fredericton, N.B.; T. Arthur Knowling, St. John's, Nfld.; Hiram S. Farquhar, Halifax, N.S.; James S. Band, Toronto, Ont.; William W. Reid, Charlottetown, P.E.I.; R.-Edgar Guay, Quebec, Que.; Robert Talbot, Regina, Sask.; Arthur N. Magill, Toronto, Ont.; A. Lorne Campbell, Winnipeg, Man.; Edgar S. Lidington, Ottawa, Ont.; William O. Geisler, Toronto, Ont.; Brock Fahrni, Vancouver, B.C.; André Guillemette, Montreal, Que.; G. Egerton Brown, Montreal, Que.; John Bancroft, Lachine, Que.; Abraham Andras, Ottawa, Ont.; Julien Major, Montreal, Que.; Oscar Hoffman, Ottawa, Ont.; E. John Rider, Ottawa, Ont.; and Ian Campbell, Ottawa, Ont.: to be members until May 5, 1966.

National Capital Commission.—1965. *Sept. 15*, S. F. Clark: to be again a member for two years from Oct. 1, 1965, and to be Chairman.

National Council of Welfare.—1964. *Dec. 23*, Leonard Hatfield, Dartmouth, N.S.; André Guillemette, Montreal, Que.; Phillip S. Fisher, Montreal, Que.; Suzanne des Rivières, Quebec, Que.; Richard E. G. Davis, Ottawa, Ont.; Bessie Touzel, Toronto, Ont.; Andrew Agnas, Ottawa, Ont.; Patricia R. Desjardins, Winnipeg, Man.; Allan William Martin, Regina, Sask.; and Mrs. Gordon S. Selman, Vancouver, B.C.: to be members for three years.

National Design Council.—1965. *Apr. 14*, John C. Parkin, Toronto, Ont.: to be a member and Chairman for three years. R. J. Hesler, Montreal, Que.; C. A. Peachey, Montreal, Que.; C. A. Pollock, Kitchener, Ont.; Claude Vermette, Ste. Adèle, Que.; H. Kelman, Ottawa, Ont.; D. S. McGivern, Toronto, Ont.; I. C. Pollack, Quebec, Que.; Warnett Kennedy, Vancouver, B.C.; George Soulis, Waterloo, Ont.; Clair Stewart, Toronto, Ont.; Mrs. T. Bata, Batawa, Ont.; G. W. Hunter, Ottawa, Ont.; Lucien Lalonde, Ottawa, Ont.; S. S. Reisman, Ottawa, Ont.; J. H. Warren, Ottawa, Ont.: to be members for three years.

National Film Board.—1965. *Mar. 4*, Roger Lemelin, Quebec, Que., and Peter John Lazarowich, Edmonton, Alta.; to be members for three years.

National Gallery of Canada.—1965. *Feb. 18*, Isidore Pollack, Quebec, Que.: to be a member of the Board of Trustees.

National Harbours Board.—1965. *Mar. 24*, Ernest J. Alton, Ottawa, Ont.: to be again a member for ten years from Apr. 1, 1965. *Nov. 29*, John E. Lloyd, Halifax, N.S.: to be a member from Dec. 1, 1965.

National Library Advisory Council.—1965. *Apr. 13*, Basil Stuart-Stubbs, Vancouver, B.C.; Gertrude Gunn, Fredericton, N.B.; and William Anthony Paddon, North West River, Nfld.: to be members for four years.

National Parole Board.—1965. *Mar. 30*, Georges-Albert Tremblay, Montreal, Que.: to be a member for ten years from Apr. 1, 1965.

National Research Council.—1965. *Mar. 9*, L. H. Cragg, Sackville, N.B.; Gleb Krotkob, Kingston, Ont.; W. F. McLean, Toronto, Ont.; and D. M. Myers, Vancouver, B.C.: to be again members for three years from Apr. 1, 1965. *July 29*, W. G. Schneider, to be a Vice-President (Scientific) from Sept. 23, 1965. *Aug. 27*, George Malcolm Brown, Chairman, Medical Research Council, Ottawa: to be a member for three years from Sept. 1, 1965. *Dec. 8*, William Stuart Hoar, Vancouver, B.C.: to be a member for three years.

Northern Ontario Pipe Line Crown Corporation.—1965. *Oct. 4*, Jack H. Warren, Deputy Minister of Trade and Commerce: to be President. Denis Harvey, Victor J. Macklin and Lawrence E. Smith: to be Directors.

Northwest Territories Council.—1965. *July 23*, Stuart Milton Hodgson: to be Deputy Commissioner from Aug. 1, 1965. *Oct. 18*, Abraham Allen Okpik, Yellowknife, N.W.T.: to be a member for the balance of the term of office of Wilfrid George Brown.

Organizing Committee for the Company of Young Canadians.—1965. *May 14*, Francis J. Leddy, President, University of Windsor: to be a member and Chairman; David Bauer, George Cram, Bernadette Dionne, Michel Forand, Valerie Forbes, Claude Frenette, Jacques Gérin, J. Roby Kidd, Jean Lagassé and Maurice Strong: to be members.

Roosevelt Campobello International Park Commission.—1965. *Apr. 8*, David Walker, St. Andrew's, N.B.: to be a Canadian member. *Mrs. C. D. Howe*, Montreal, Que.; *Donald McLean*, Black's Harbour, N.B.; and *Stuart Trueman*, Saint John, N.B.: to be the Canadian alternate members.

Royal Commissions.—1965. *Mar. 2*, Nathaniel Theodore Nemetz, Judge of the Supreme Court of British Columbia: to be a Commissioner under Part I of the Inquiries Act to inquire fully into and to investigate the charges of irregularities in the federal election of 1963 made by Ormond Turner in the issue of the *Vancouver Province* of Feb. 22, 1965. *July 9*, George H. McIvor, Montreal, Que.: to be a Commissioner under Part I of the Inquiries Act to inquire into and report upon the marketing problems of the freshwater fish industry in the Provinces of Ontario, Manitoba, Saskatchewan and Alberta and the Northwest Territories. *Nov. 25*, Paul Lacoste: to be a member of the Royal Commission on Bilingualism and Biculturalism, *vice* Jean Marchand.

St. Lawrence Seaway Authority.—1965. *June 15*, Pierre Camu, Vice-President, Ottawa, Ont.: to be President for five years from Aug. 1, 1965. *Aug. 25*, P. E. R. Malcolm, a member: to act as President during the latter's incapacity or absence or during a vacancy in the office of the President. *Nov. 1*, Delmer E. Taylor, Fort Erie, Ont.: to be a member for ten years from Dec. 1, 1965. P. E. R. Malcolm: to be Vice-President.

Special Planning Secretariat of the Privy Council Office.—1965. *Apr. 15*, Tom Kent: to be Director. *Apr. 20*, R. A. J. Phillips: to be Deputy Director. *Pierre Vachon*, Area Development Officer, Dept. of Industry: to be a member. *June 11*, Stanley Goodman, Department of Labour; *William Dyson*, Dept. of National Health and Welfare; and *Philip Gerard*, ARDA, Department of Forestry: to be members (on extended loan). *William Dixon*, Director, School of Social Work, University of British Columbia: to be consultant for two months.

Statute Revision Commission.—1965. *Apr. 2*, E. A. Driedger, Deputy Minister of Justice; *R. Bédard*, Associate Deputy Minister of Justice; *D. S. Thorson*, Assistant Deputy Minister of Justice; *J. Miquelon*, Deputy Registrar General of Canada; *J. W. Ryan*, Senior Advisory Counsel in the Department of Justice: to be members. The Minister of Justice: to be Chairman.

Tax Appeal Board.—1965. *Aug. 11*, Samuel Richard Perrin, Ottawa, Ont.: to be Deputy Registrar from Sept. 1, 1965.

Unemployment Insurance Commission.—1965. *Feb. 18*, C. A. L. Murchison, Ottawa, Ont.: to be again a Commissioner for three months. *May 11*, *Morris C. Hay*, Oakville, Ont.: to be a Commissioner for five years from June 7, 1965.

War Veterans Allowance Board.—1965. *June 3*, *Charles Henry Rennie*, Victoria, B.C.: to be again a temporary member for one year from Oct. 2, 1965. *Oct. 4*, *John Harold McDougal Dehler*, Ottawa, Ont.: to be a temporary member for one year from Oct. 15, 1965.

PART IV. —FEDERAL LEGISLATION, 1964-65

Legislation passed in the second and third sessions of the Twenty-sixth Parliament is outlined on pp. 1150-1154. Naturally in summarizing material of this kind it is not always possible to convey the full implication of the legislation. The reader who is interested in any specific Act is therefore referred to the *Statutes of Canada* in the given volume and chapter.

**Legislation of the Second Session of the Twenty-sixth Parliament,
Feb. 18, 1964 to Apr. 3, 1965**

Subject, Chapter and Date of Assent	Synopsis
13-14 ELIZ. II	
Agriculture— 1964	
12 June 18	<i>An Act to amend the Farm Credit Act</i> increases the capital of the Farm Credit Corporation permitting it to borrow up to \$600,000,000 rather than \$400,000,000 from the Consolidated Revenue Fund; the amendment also increases the limits on borrowing for a single farming enterprise under Parts II and III of the Act, permits an advance in the interest rates on the increased portion, and permits repayment to be amortized over the entire term of the loan rather than requiring greater repayments to be made during the first ten years.
28 Oct. 15	<i>An Act to amend the Crop Insurance Act</i> authorizes the establishment of a crop reinsurance plan whereby those provinces operating a crop insurance plan may, if they so desire, reinsure part of their risks under such plan.
29 Oct. 15	<i>The Farm Machinery Syndicates Credit Act</i> provides for the extension of credit to farm machinery syndicates.
Finance— 1964	
1 Mar. 30	<i>Appropriation Act No. 1, 1964</i> grants certain sums of money for the public service for the financial year ending Mar. 31, 1965.
3 Apr. 3	<i>Appropriation Act No. 3, 1964</i> grants certain sums of money for the public service for the financial year ending Mar. 31, 1964.
4 Apr. 6	<i>Appropriation Act No. 2, 1964</i> grants certain sums of money for the public service for the financial year ending Mar. 31, 1964.
5 Apr. 13	<i>Appropriation Act No. 4, 1964</i> grants certain sums of money for the public service for the financial year ending Mar. 31, 1964.
9 May 28	<i>Appropriation Act No. 5, 1964</i> grants certain sums of money for the public service for the financial year ending Mar. 31, 1965.
10 June 18	<i>An Act to amend the Bank Act and the Quebec Savings Banks Act</i> extends by one year authority to carry on business for the banks to which these Acts apply.
17 June 30	<i>Appropriation Act No. 6, 1964</i> grants certain sums of money for the public service for the financial year ending Mar. 31, 1965.
20 July 16	<i>Appropriation Act No. 7, 1964</i> grants certain sums of money for the public service for the financial year ending Mar. 31, 1965.
25 Aug. 7	<i>Appropriation Act No. 8, 1964</i> grants certain sums of money for the public service for the financial year ending Mar. 31, 1965.
26 Aug. 13	<i>The Federal-Provincial Fiscal Revision Act, 1964</i> revises certain fiscal arrangements with the provinces and adjusts fiscal arrangements and taxation provisions consequential upon the provision of youth allowances to parents resident in certain provinces.
30 Nov. 5	<i>Appropriation Act No. 9, 1964</i> grants certain sums of money for the public service for the financial year ending Mar. 31, 1965.
34 Dec. 2	<i>Appropriation Act No. 10, 1964</i> grants certain sums of money for the public service for the financial year ending Mar. 31, 1965 (Main Supply Bill).
1965	
49 Apr. 3	<i>Appropriation Act No. 1 (Interim), 1965</i> grants certain sums of money for the public service for the financial year ending Mar. 31, 1965.
50 Apr. 3	<i>Appropriation Act No. 2 (Supplementary), 1965</i> grants certain sums of money for the public service for the financial year ending Mar. 31, 1965.
Government— 1964	
31 Nov. 20	<i>The Electoral Boundaries Readjustment Act</i> provides for the establishment of Electoral Boundaries Commissions to report upon the readjustment of the representation of the provinces in the House of Commons and provides for the readjustment of such representation in accordance therewith.

**Legislation of the Second Session of the Twenty-sixth Parliament,
Feb. 18, 1964 to Apr. 3, 1965—continued**

Subject, Chapter and Date of Assent	Synopsis
Government—concl. 1965	
47 Mar. 18	<i>An Act to amend the Privileges and Immunities (United Nations) Act</i> enables Canada to accord privileges and immunities to additional international organizations of which it is a member and ensures that experts performing missions for such organizations are granted appropriate privileges and immunities when on official missions in Canada.
48 Mar. 18	<i>An Act respecting the Revised Statutes of Canada</i> authorizes the preparation and publication of a revision and consolidation of the public general statutes of Canada.
54 Apr. 3	<i>The Established Programs (Interim Arrangements) Act</i> is an Act of an interim nature respecting the operation of certain established federal-provincial conditional-grant and shared-cost programs, permitting the provinces that wish to do so to assume financial responsibility for such programs and providing for financial adjustments consequential upon such assumption of responsibility.
Justice— 1964	
14 June 18	<i>An Act to amend the Judges Act and the Exchequer Court Act</i> authorizes the appointment of, and the provision of salary for, an additional judge of the Exchequer Court of Canada to perform the duties referred to in the Dissolution and Annulment of Marriages Act (SC 1963, c. 10).
35 Dec. 18	<i>An Act to amend an Act to amend the Combines Investigation Act and the Criminal Code</i> extends for two years the moratorium which prevents the application of the Combines Investigation Act as far as the relations between fishermen of British Columbia and those who process fish are concerned.
36 Dec. 18	<i>An Act to amend the Judges Act</i> authorizes the provision of salaries for seven additional judges: three judges of the Superior Court of Quebec; one justice of appeal of the Supreme Court of Alberta; two Ontario county court judges; and one British Columbia county court judge.
1965	
46 Mar. 18	<i>An Act to amend the Penitentiary Act</i> makes express provision to cover the present practice whereby, during any period in which an appeal by a person sentenced to penitentiary is pending or he is awaiting a medical certificate, he shall be held in custody in a place other than a penitentiary.
53 Apr. 3	<i>An Act to amend the Criminal Code (Habeas Corpus)</i> provides for the right of appeal in habeas corpus proceedings.
Labour— 1965	
38 Mar. 18	<i>The Canada Labour (Standards) Code</i> establishes a national minimum wage of \$1.25 an hour, a standard eight-hour day and a forty-hour week, annual vacations with pay and seven statutory holidays for works under federal jurisdiction.
National Defence— 1964	
21 July 16	<i>An Act to amend the National Defence Act</i> replaces the Chairman of the Chiefs of Staff Committee and the Chiefs of the Naval Staff, General Staff and Air Staff with an authority to be charged with all the functions, powers and duties of the persons being replaced, to be known as the Chief of the Defence Staff; consequential amendments are made to the portions of the Act concerned.
Revenue— 1964	
7 May 21	<i>An Act to amend the Customs Tariff</i> implements the Budget resolutions relating to the Customs Tariff.
8 May 21	<i>An Act to amend the Estate Tax Act</i> provides that the estate tax will be reduced by 75 p.c. in provinces that levy their own succession duty; raises the limit of funds available to beneficiaries from any one bank to \$2,500; and adjusts certain settlements and dispositions in the Province of Quebec.
11 June 18	<i>The Crown Corporations (Provincial Taxes and Fees) Act</i> authorizes the payment of certain provincial taxes and fees by Crown corporations.

**Legislation of the Second Session of the Twenty-sixth Parliament,
Feb. 18, 1964 to Apr. 3, 1965—continued**

Subject, Chapter and Date of Assent	Synopsis
Revenue—concluded	
13 1964 June 18	<i>An Act to amend the Income Tax Act</i> contains a number of technical and other revisions including the allowance of a deduction in 1964 to parents of children aged 16 and 17 years and the modification of the definition of a child qualified for family allowance.
37 1965 Mar. 18	<i>The Canada-Japan Income Tax Convention Act, 1965</i> implements a Convention between Canada and Japan for the avoidance of double taxation with respect to income tax and amends the existing Agreement and Conventions between Canada and Denmark, Finland and the Netherlands with respect to income tax.
Transportation—	
2 1964 Mar. 30	<i>An Act respecting the Trans-Canada Air Lines Act</i> changes the name of Trans-Canada Air Lines and Lignes aériennes Trans-Canada to "Air Canada".
6 May 21	<i>The Blue Water Bridge Authority Act</i> authorizes the establishment of a Blue Water Bridge Authority to operate and maintain the Canadian portion of the international bridge connecting Canada and the United States across the St. Clair River.
16 May 19	<i>The Ste-Foy-St-Nicolas Bridge Act</i> authorizes the construction and maintenance of a bridge across the St. Lawrence River between the City of Ste-Foy and the municipality of St-Nicolas in the Province of Quebec.
32 May 7	<i>The Harbour Commissions Act</i> provides for the establishment of new harbour commissions, defining the limits of the harbour and the authorities having power to appoint the members of a commission; existing harbour commissions may be brought under the standard Act as circumstances warrant.
33 July 22	<i>An Act to repeal certain Acts of the Province of Newfoundland respecting Harbours and Pilotage.</i>
39 1965 Mar. 18	<i>An Act to amend the Canada Shipping Act</i> gives effect to the International Convention for the Safety of Life at Sea, 1960.
41 Mar. 18	<i>The Canadian National Railways Financing and Guarantee Act, 1964</i> authorizes the provision of money to meet certain capital expenditures of the Canadian National Railways System for the period Jan. 1, 1964 to June 30, 1965, and the guarantee of certain securities to be issued by the CNR.
Welfare—	
23 1964 July 16	<i>The Youth Allowances Act</i> provides for the payment to a parent of a dependent youth aged 16 or 17 years of a monthly allowance of \$10.
45 1965 Mar. 18	<i>An Act to amend the Merchant Seamen Compensation Act</i> increases the benefits under the Act, bringing them into line with the level of benefits under the workmen's compensation Acts of the Maritime Provinces.
51 Apr. 3	<i>The Canada Pension Plan</i> establishes a comprehensive program of old age pensions and supplementary benefits in Canada payable to and in respect of contributors.
Miscellaneous—	
15 1964 June 18	<i>An Act to amend the National Housing Act, 1954</i> , among other revisions, provides further assistance to provinces and municipalities carrying out urban renewal programs; authorizes loans to provincially or municipally owned agencies for acquiring lands for and constructing public housing projects; increases from \$2,000,000,000 to \$2,500,000,000 the amount provided for direct loaning by Central Mortgage and Housing Corporation; and increases from \$100,000,000 to \$150,000,000 the amount of loans for the construction of university housing projects.
18 June 30	<i>An Act to amend the Export Credits Insurance Act</i> exempts the Export Credits Insurance Corporation from the obligation of paying income tax; authorizes the insurance against loss of equipment employed in rendering technical services outside Canada; authorizes the Corporation to take on additional insurable business of Canadian exporters; raises the allowable amount of liability of the Corporation under contracts of insurance from \$400,000,000 to \$600,000,000; and adjusts other financial arrangements.

**Legislation of the Second Session of the Twenty-sixth Parliament,
Feb. 18, 1964 to Apr. 3, 1965—concluded**

Subject, Chapter and Date of Assent	Synopsis
Miscellaneous—conc.	
1964	
19 June 30	<i>The Roosevelt Campobello International Park Commission Act</i> embodies the necessary Canadian federal legislation required for the joint administration, by international commission, of the Roosevelt Campobello International Park in New Brunswick.
22 July 16	<i>The Territorial Sea and Fishing Zones Act</i> establishes, on proclamation, the fishing zones of Canada at 12 miles from the coastline and authorizes the application of the straight base line system to the Canadian coastline.
24 July 28	<i>The Canada Student Loans Act</i> facilitates the making of loans to students by guaranteeing bank loans for this purpose of not more than \$1,000 to a student in one academic year, and a total of \$5,000 to that student over a five-year period.
1965	
40 Mar. 18	<i>An Act to amend certain Acts administered in the Department of Insurance</i> amends four Acts (the Canadian and British Insurance Companies Act, the Foreign Insurance Companies Act, the Trust Companies Act and the Loan Companies Act) for the purposes of expanding the investment powers of federally incorporated insurance and loan and trust companies and retaining in Canada ownership and control of those federally incorporated companies that still remain in Canadian hands.
42 Mar. 18	<i>An Act to amend the Coal Production Assistance Act</i> extends to Oct. 31, 1969 the period during which coal assistance loans may be made.
43 Mar. 18	<i>An Act to amend the Corporations and Labour Unions Returns Act</i> permits the elimination of duplication in the filing of returns to two separate government bodies and facilitates more effective processing of corporation financial statistics.
44 Mar. 18	<i>The Geneva Conventions Act</i> approves the Geneva Conventions for the Protection of War Victims, signed at Geneva Aug. 12, 1949.
52 Apr. 3	<i>An Act to amend the Companies Act</i> changes the name of the Act to the Canada Corporations Act and includes extensive amendments to company legislation in order to bring it up to date and to meet present-day requirements.

**Legislation of the Third Session of the Twenty-sixth Parliament,
Apr. 5, 1965 to June 30, 1965**

Subject, Chapter and Date of Assent	Synopsis
14 ELIZ. II	
Finance—	
1 June 2	<i>Appropriation Act No. 3, 1965</i> grants certain sums of money for the public service for the financial year ending Mar. 31, 1966.
6 June 23	<i>Appropriation Act No. 4, 1965</i> grants certain sums of money for the public service for the financial year ending Mar. 31, 1966.
10 June 30	<i>Appropriation Act No. 5, 1965</i> grants certain sums of money for the public service for the financial year ending Mar. 31, 1966.
11 June 30	<i>Appropriation Act No. 6, 1965</i> grants certain sums of money for the public service for the financial year ending Mar. 31, 1966.
Government—	
4 June 2	<i>An Act to make provision for the retirement of members of the Senate</i> places at 75 years the age at which a Senator shall cease to hold his place in the Senate and provides for retiring allowances on a contributory basis.
5 June 2	<i>An Act to amend certain Acts respecting the superannuation of persons employed in the Public Service, members of the Canadian Forces and members of the Royal Canadian Mounted Police</i> relates mainly to the adjustment of the Superannuation Account, required as a result of any salary increase.

**Legislation of the Third Session of the Twenty-sixth Parliament,
Apr. 5, 1965 to June 30, 1965—concluded**

Subject, Chapter and Date of Assent	Synopsis
Housing—	
3 June 2	<i>An Act to amend the National Housing Act, 1954</i> increases from \$6,000,000,000 to \$8,500,000,000 the maximum of all loans insured under the Act, from \$2,500,000,000 to \$3,250,000,000 the amount available for direct borrowing, and from \$100,000,000 to \$300,000,000 the amount available for urban renewal projects.
8 June 23	<i>An Act to amend the Central Mortgage and Housing Corporation Act</i> provides for the appointment of two additional vice-presidents, and certain amendments to the Act consequential thereon.
Revenue—	
2 June 2	<i>An Act to amend an Act to amend the Excise Tax Act</i> removes the deadline date of Dec. 31, 1964, in the case of a refund of or deduction from tax or payment of an amount equal to tax in respect of designated goods.
16 June 30	<i>An Act to amend the Customs Act</i> permits the acceptance of a bond or other security as guarantee of payment of duty; permits the reduction of value for duty in certain circumstances; establishes a procedure for determining the value for duty of goods shipped indirectly to Canada; and permits the setting of rates of duty on goods of a foreign government that are sold in Canada on behalf of that government.
17 June 30	<i>An Act to amend the Customs Tariff</i> implements the Budget resolutions relating to the Customs Tariff.
18 June 30	<i>An Act to amend the Income Tax Act and the Federal-Provincial Fiscal Arrangements Act</i> provides for a 10-p.c. reduction in income tax payable by individuals and for consequential changes in the Federal-Provincial Fiscal Arrangements Act; other provisions relate to exemptions and deductions permissible in the computation of taxable income and to expenditures of a taxpayer for advertising space in a non-Canadian newspaper or periodical.
Veterans—	
15 June 30	<i>An Act to amend the Children of War Dead (Education Assistance) Act</i> provides for an increase from \$25 to \$35 in the monthly allowance paid to a student and provides that when the rate of pension payable to an orphan under the Pension Act is changed there be a corresponding change in the additional amount paid to a student after he has reached 21 years of age.
19 June 30	<i>An Act to amend the Veterans' Land Act</i> extends many provisions of the Act in order to serve the needs of veterans already settled on farms, small holdings and other properties, makes available increased loan amounts for veterans who wish to become established under the provisions of the Act and also includes improved administration provisions.
20 June 30	<i>An Act to amend the War Veterans Allowance Act, 1952</i> allows for further exemptions in property and income and makes certain administrative changes.
Miscellaneous—	
7 June 23	<i>An Act to amend the Bank Act and the Quebec Savings Banks Act</i> extends to Dec. 31, 1965 the authority to carry on business for the banks to which these Acts apply.
9 June 23	<i>An Act to amend the Fisheries Improvement Loans Act</i> increases the maximum loan amount from \$4,000 to \$10,000, increases the repayment period from eight to ten years, and extends the period during which loans may be made to June 30, 1970.
12 June 30	<i>The Area Development Incentives Act</i> provides incentives for the development of industrial employment opportunities in designated areas and effects certain related amendments to the Income Tax Act.
13 June 30	<i>An Act to amend the Army Benevolent Fund Act</i> increases the rate of interest payable on the minimum balance to the credit of the Fund and provides for periodic adjustment of this rate.
14 June 30	<i>An Act respecting the construction of a line of railway in the Province of Ontario by Canadian National Railway Company from a point at or near mileage 3.2 of the Froomfield Spur of the Canadian National Railway near Sarnia in a southerly direction for a distance of approximately 12 miles to the property of Canadian Industries Limited in Sombra Township in the County of Lambton.</i>

PART V.—CANADIAN CHRONOLOGY

Events in the general chronology from 1497 to 1866 are given in the 1951 Year Book, pp. 46-49; from 1867 to 1953 in the 1954 Year Book, pp. 1259-1264; and annually from that year on in successive editions. A reprint entitled *Canadian Chronology, 1497-1960* is also available from the Dominion Bureau of Statistics. The following listing covers the year 1965 and it should be mentioned that certain of the dates given therein are approximate. References regarding changes in federal and provincial legislatures or ministries are not included but may be found in Chapter II on Constitution and Government or in the Appendix.

1965

January: *Jan. 1*, External Affairs Minister Martin announced relief assistance of \$40,000 to India and Ceylon following cyclone and tidal wave disaster. *Jan. 3*, Death of R. Watson Sellar, former Auditor General of Canada, in Ottawa. *Jan. 4*, Montreal newspaper *La Presse* resumed publication after a seven-month strike. *Jan. 5*, Commonwealth officials met in London to consider the structure and functions of the proposed Commonwealth Secretariat. *Jan. 6*, Release of letters from Mrs. Jacqueline Kennedy and Mrs. Rose Kennedy thanking Canada for naming a mountain in tribute to the late U.S. President John F. Kennedy and for \$100,000 contribution to the John F. Kennedy Memorial Library. The Dominion Bureau of Statistics was designated a "department" for the purposes of the Civil Service Act and the Financial Administration Act, and the Dominion Statistician the Deputy Head of the Department. Formation announced of a multi-national anti-submarine destroyer squadron under NATO, in which Canada will participate. *Jan. 7*, President Sukarno announced Indonesia's intention to withdraw from the UN; official notification given to Secretary-General U Thant *Jan. 21*, Agreement between Canada and the Malagasy Republic to establish diplomatic relations announced. *Jan. 9*, Mountain slide into a half-mile-wide valley near Hope, B.C., covered Hope-Princeton Highway and claimed four lives. *Jan. 11*, Presentation to Governor General Vanier of a gold medallion commemorating 100 years of Italian settlement in Canada by Dan Iannuzzi of Montreal, Secretary of the Canadian-Italian Centennial Committee. First report of the Economic Council of Canada, appointed Sept. 12, 1963, published. Ceremonies held in Kingston, Ont., marking the sesquicentennial of the birth of Sir John A. Macdonald, Canada's first Prime Minister. *Jan. 13*, External Affairs Minister Orlich announced that the Toronto Symphony Orchestra, the Royal Winnipeg Ballet, le Théâtre du Nouveau Monde and Les Feux Follets had accepted a Government invitation to perform in the Commonwealth Arts Festival in Britain, Sept. 16-Oct. 2. Seven lives lost in massive avalanche at Ocean Falls, B.C. *Jan. 16*, An agreement eliminating all tariffs on new cars and new car parts signed by Prime Minister Pearson and U.S. President Johnson. *Jan. 17*, Death of Senator Austin C. Taylor of Salisbury, N.B. *Jan. 18*, Agreement between Canada and Nepal to establish diplomatic relations announced. *Jan. 20*, Legislation proclaimed providing for the establishment of Electoral Boundaries Commissions to report on the readjustment of the representation of the provinces in the House of Commons; members named. Resignation of Hon. Yvon Dupuis, Minister without Portfolio; arraigned Mar. 4 in St. Jean, Que., on charges of having accepted \$10,000 during efforts in 1961 to obtain a racetrack franchise in his riding from the Quebec Government. Hon. Mr. Justice François Chevalier, Hull, Que., appointed mediator of the labour dispute between Actors' Equity and the Montreal-based Union des Artistes (CLC) bargaining for entertainment people in the Montreal area; under terms of agreement,

June 30, jurisdiction to be divided on the basis of English and French expression. *Jan. 24*, Death of Sir Winston Churchill; state funeral Jan. 31. *Jan. 25*, Military assistance to Malaysia amounting to \$4,000,000 announced, to include four transport aircraft and parts, 250 motorcycles and pilot and cadet training facilities. *Jan. 28*, Proclamation of National Flag of Canada signed by H.M. Queen Elizabeth at Buckingham Palace.

February: Under extended aid program, Canada agreed to give Trinidad and Tobago \$3,000,000 in grants and loans over a 50-year period at low interest. *Feb. 1-26*, Dispute in Quebec re teachers' salaries involved about 12 district school boards, 506 teachers and 17,000 French-speaking students. *Feb. 1*, Hook-up of Canadian TWX (teletypewriter exchange service) with more than 100 countries, giving access to 128,000 overseas stations in addition to the more than 60,000 subscribers to the TWX network in the U.S., making it the largest dial-and-type network in the world. Canada, the United States, Britain, Australia and New Zealand launched an international appeal for funds to set up a memorial to Sir Winston Churchill through Fellowships to be granted to persons in all walks of life whose qualifications and service to the community indicate that an opportunity for study and travel would enable them to be of even greater service to their own country. Premier Smallwood of Newfoundland announced the change of name of the Hamilton River in Labrador to Churchill River in honour of Sir Winston Churchill. *Feb. 1-2*, Visit of Mrs. Indira Gandhi, Minister of Information and Broadcasting of India. *Feb. 3*, Announcement by federal Minister of Labour MacEachen and Ontario Minister of Education Davis of plans for establishment at Elliot Lake, Ont., of a Centre for Continuing Education programs for adults, to include fine and performing arts, management, selected technologies and labour education. *Feb. 5*, Public Works Minister Deschatelets announced that a sum equal to 1 p.c. of construction contracts for federal buildings will be provided for the inclusion of fine art work such as murals, sculptures, mosaics, tapestries, paintings and fountains by professional Canadian artists. *Feb. 10*, Donation of \$8,200,000 by H. R. MacMillan of Vancouver to the University of British Columbia to foster postgraduate education announced. *Feb. 12*, Resignation of federal Public Works Minister Deschatelets for personal reasons. *Feb. 13*, Seventy-day strike of employees of the Quebec Liquor Board ended with acceptance of management contract offer. Canadian research scientists under the leadership of Dr. Stanley Skoryna of McGill University left Easter Island in the South Pacific after two months of study of disease in relation to an isolated environment. *Feb. 15*, Canada's new flag raised for the first time with ceremony on Parliament Hill in Ottawa and, simultaneously, thousands were raised throughout the country and wherever Canadians were in official service around the world. Dr. Hugh S. Bostock, a geologist with the Geographical Survey, awarded the Royal Canadian Geographical Society's Massey Medal. *Feb. 16*, Michelle Duclos of Montreal arrested in New York in a plot to destroy the Statue of Liberty, the Washington

Monument and the Liberty Bell; after trial, given five-year conditional sentence June 17. *Feb. 17*, Prime Minister Pearson announced plans for yearly reduction of the age at which the old age pension will commence, payments eventually to begin at age 65 instead of 70. *Feb. 18*, Gambia, Britain's oldest and last West African territory, became an independent nation within the Commonwealth after more than 300 years of British rule. Second report of the Royal Commission on Health Services tabled in the House of Commons; administrative framework for the proposed pre-paid medical care plan outlined. Establishment of an 18-member advisory committee on dental health announced by Minister of Health and Welfare Judy LaMarsh. Establishment of a graduate School of International Affairs, unique in Canada, as a result of grant of \$400,000 from Senator Norman M. Paterson, announced by Carleton University, Ottawa. Rémi Paul, Progressive Conservative M.P. for Berthier-Maskinongé-Delanaudière, announced his decision to sit as an independent member. The isolated copper-mining camp of Granduc Mines Ltd. 30 miles north of Stewart, B.C., buried under an avalanche; 18 dead and 8 missing. *Feb. 19*, Death of Senator John A. Robertson of Kenora, Ont. *Feb. 21*, Petra Burka, Toronto, won the women's North American Figure Skating Championship in competitions held in Rochester, N.Y. *Feb. 23*, Montreal author Jacques Hébert sentenced to 30 days in jail and fined \$3,000 after being found guilty of contempt of court for various statements in his book *I Accuse the Assassins of Collin*. Federal Government approval of collective bargaining and arbitration in the Civil Service announced by Privy Council President McIlraith. *Feb. 24*, The flag of New Brunswick—a red compartment containing a gold lion, over a gold compartment containing an ancient ship on three wavy lines, one white and two blue—proclaimed. *Feb. 25*, Preliminary report of the Royal Commission on Bilingualism and Biculturalism tabled in the House of Commons. Report of the Ontario Medical Services Insurance Committee appointed Aug. 22, 1963, released; a plan similar to that of Alberta recommended.

March: *Mar. 1*, Explosion in Ville LaSalle, suburban Montreal, destroyed an apartment building; 26 persons killed and 32 injured or unaccounted for. Design unveiled of the \$18,000,000 Centre for the Performing Arts at Ottawa, comprising a 2,300-seat opera house and concert hall, a 900-seat theatre and a 300-seat recital studio. A \$6,000,000 plan for development of Kejimikujik National Park in southwestern Nova Scotia announced by National Resources and Northern Affairs Minister Laing. *Mar. 2*, Lucien Rivard, key figure in the Dorion inquiry, held in Bordeaux jail on charges of trafficking in narcotics, escaped with a companion, touching off a continent-wide manhunt. Death of Frank Ryan of Ottawa, President of radio station CFRA and internationally known in business and farming circles. Appointment of Judge N. T. Nemetz, of the Superior Court of British Columbia, as commissioner to inquire into alleged charges of irregularities in certain B.C. constituencies in the 1963 federal election levelled by Ormond Turner of the *Vancouver Province*; report, made public Aug. 18, found no proof of such irregularities. Report of the Board of Trustees of the Maritime Transportation Unions tabled in the House of Commons by Minister of Labour MacEachen. *Mar. 5*, Petra Burka of Toronto won the world figure skating championship at Colorado Springs. Bylot Island, off the north coast of Baffin Island, declared a migratory bird sanctuary, the 15th established in the Canadian Arctic. *Mar. 6*, The 1965 gold medals of the Professional Institute of the Public Service of Canada awarded to L. Dana Wilgress, Ottawa, Chairman of the Canadian Section of the Canada-U.S. Permanent Joint Board of Defence, and Dr. Allison Pickett, entomologist, Kentville, N.S. *Mar. 8*, The Newfoundland Government an-

nounced free tuition for all Newfoundland first-year students at Memorial University, St. John's, setting a precedent in Canada. *Mar. 9*, Death of Fiorenza Drew, wife of Hon. George A. Drew, former Premier of Ontario and former Canadian High Commissioner to Britain. *Mar. 10*, Miss Japan-Canada Friendship (Hirosko Koba) selected in Tokyo under sponsorship of the Department of Trade and Commerce; to visit Canada in March and April, accompanied by Japanese journalists and TV cameramen, to publicize Tokyo International Trade Fair. Charter granted by Ontario Government to Martin Shulist, Wilno, Ont., for a Polish-Canadian museum in the Barry's Bay area to be known as Polish Canadian Pioneer Centre. *Mar. 10-14*, Negro civil rights demonstrators marched in Selma and Montgomery, Alabama; demonstrations in sympathy took place in Toronto on Mar. 12 and in Ottawa on Mar. 14. *Mar. 12*, Announcement by Veterans Affairs Minister Tillett that, effective Apr. 1, DVA prosthetic services will be available to all Canadians through the Department of National Health and Welfare. *Mar. 15*, A device to speed location and cause of aircraft crashes, developed at the National Research Council, to be commercially produced for the RCAF and the USAF. *Mar. 16*, University of Waterloo officials announced introduction of a bilingual course in honours French and political science for students preparing to enter the federal civil service, the first of its kind in Canada. *Mar. 18*, Russian cosmonaut Leonov took the first steps into space when he emerged briefly from his space ship and returned safely. *Mar. 19*, Announcement of an additional federal grant of \$10,000,000 to the Canada Council to meet expanding needs. *Mar. 23*, Two United States astronauts, Grissom and Young, successfully completed space flight in the world's first steerable spacecraft. *Mar. 24*, Robert Kennedy and members of the U.S. National Geographic Society and the Boston Museum of Science climbed 13,900-foot Mount Kennedy, described as the highest unclimbed peak in North America, and planted a black-bordered flag at its summit. *Mar. 25*, Seizure in Montreal of \$25,000,000 worth of pure heroin announced by the RCMP; two employees of Air France and a Montreal man charged. *Mar. 26*, Winners of the Governor General's Literary Awards for 1964 announced: Phyllis Grosskurth (non-fiction in English); Raymond Souster (poetry in English); Douglas LePan (fiction in English); Pierre Perrault (poetry in French); Rev. Réjean Robidoux (non-fiction in French); and Jean-Paul Pincus (fiction in French). *Mar. 28*, Death of H.R.H. the Princess Royal, only daughter of the late King George V and Queen Mary.

April: RCMP schooner *St. Roch*, first vessel to navigate the northwest passage from west to east, to be preserved at Vancouver as a national historic monument. Subsidiary of Japan's largest automobile exporter opened Canadian head office in Vancouver. The freighter *Mitsurink* became the first U.S.S.R. ship to enter the St. Lawrence Seaway system. *Apr. 1*, The National Employment Service transferred from the Unemployment Insurance Commission to the Department of Labour. Death of General H. D. G. Crerar, Commander of the 1st Canadian Army in the Second World War and the first Canadian General to command Canadian Forces in the field. *Apr. 2*, Prime Minister Pearson received the second annual Temple University World Peace Award in Philadelphia, for making "a singular contribution to the cause of peace and understanding among nations and men". Second Session of the 26th Parliament prorogued—the longest session in Canadian history, lasting 248 days. The Canada Pension Plan Act assented to. *Apr. 3*, Report of Mr. Joseph Sedgwick into allegations by M.P.'s and the press against the Department of Citizenship and Immigration that aliens facing deportation were jailed unlawfully

and denied access to counsel tabled in the House of Commons; report found the procedures followed in most cases were beyond reproach. *Apr. 6*, Announcement of Canadian Government program to equip and train an air force in the African Commonwealth country of Tanzania. Leonard S. Marchand, a member of the Okanagan Indian Band, appointed Special Assistant to Minister of Citizenship and Immigration, the first Indian to be appointed to the personal staff of a Federal Cabinet Minister. *Apr. 7*, Hon. Léon Balcer, M.P. for Trois-Rivières, left the Progressive Conservative Party to sit in the House of Commons as an Independent. *Apr. 8*, Announcement of Canada's financial participation in the \$1,000,000,000 aid plan for Southeast Asia proposed by U.S. President Johnson. Tributes expressed in the House of Commons in recognition of the 100th anniversary of the founding of the Salvation Army; special service of commemoration held in Christ Church Cathedral, Ottawa. *Apr. 9*, Gift of \$20,000 by the Federal Government to the Canadian Red Cross, in addition to the \$5,000 provided by the CRC from its own funds, for aid in Chile following an earthquake. *Apr. 10*, Formal opening of \$1,000,000 air terminal at London, Ont. Collision between Dutch ship *Hermes* and the German ship *Transatlantic* in the St. Lawrence River near Trois-Rivières resulted in the death of three seamen and the sinking of the latter ship. *Apr. 13*, Albert Williamson, a public relations man, committed for trial on charges of forging the signature of Premier W. A. C. Bennett on a letter to the special assistant to Prime Minister Pearson, supporting the application of Harry Stonellill for landed immigrant status in Canada subsequent to his rejection by the Department of Citizenship and Immigration; sentenced June 4 to two six-month concurrent jail terms and fined \$1,000. Allotment of \$3,300,000 for a nation-wide festival of the performing arts in Canada's centennial year announced by the Federal Government. *Apr. 17*, CPR passenger train, carrying 375 passengers, derailed near Terrace Bay, Ont.; one person killed and 47 injured. *Apr. 21*, Gregory Clark, veteran Toronto newspaper man, named first honorary member of a newly instituted News Hall of Fame. *Apr. 23*, Following the claim of Quebec Education Minister Gérin-Lajoie that the Quebec Government has the right to conclude "agreements" with foreign governments about matters coming under its field of jurisdiction, External Affairs Minister Martin declared that independent "treaty-making powers" are the prerogative of sovereign states. *Apr. 26*, The Federal Budget announced by Finance Minister Gordon included benefits for business and a 10-p.c. cut in personal income tax. *Apr. 28*, 1,200 representatives of the Ontario Farmers' Union marched on Parliament Hill and presented a petition to the Federal Cabinet requesting higher farm support prices. Death of John Adams in Brantford, one of the founders of the Royal Canadian Legion and first President of the Legion's Branch No. 1 in Toronto. *Apr. 29*, The Stephen Leacock Memorial Medal for Humor presented to veteran newspaper man Gregory Clark. *Apr. 30*, The Vanier Institute of the Family received charter; Dr. Wilder Penfield of Montreal elected President.

May: Construction started on the \$500,000,000 Columbia River power project officially. The Canadian National Exhibition, Toronto, to establish an Indian Hall of Fame, beginning with a portrait gallery honouring 12 famous Canadian Indians. The first of across-Canada network of emergency telephone centres protected from nuclear bomb radiation established at Red Deer, Alta. *May 1*, Trinity College School, Port Hope, Ont., celebrated its 100th anniversary. The Montreal Canadiens won the Stanley Cup, symbol of professional hockey supremacy. *May 2*, Georges Lemay, one of Canada's most wanted criminals, arrested in Fort Lauderdale, Fla., following broad-

cast of his picture as part of the Canadian contribution to the inauguration of the international television facilities of the *Early Bird* satellite. *May 4*, Appointment of a Special Committee on Corrections announced by Justice Minister Favreau; Mr. Justice Roger Quimé of Montreal, chairman. *May 6*, Senator Norman Paterson installed as first Chancellor of Lakehead College of Arts, Science and Technology, Port Arthur, Ont., to reopen in September as Lakehead University. *May 7*, Toronto's three daily newspapers and 225 members of the Toronto Mailers Union reached agreement for a return to work after a mailers' strike which began July 9, 1964. Two Soviet diplomats expelled from Canada following discovery of an alleged plot to establish an extensive espionage network in Canada; one of the two civil servants involved dismissed without right of appeal Dec. 31. *May 8*, Death of Vice-Admiral H. T. W. Grant, former Chief of Naval Staff. *May 10*, Cornerstone of the National Library and Archives Building, Ottawa, laid by Governor General Vanier. *May 11*, Seven members of the 12-man team of the 2nd Battalion, the Royal Canadian Regiment, won Duke of Edinburgh trophy for marksmanship and physical fitness for third consecutive year; received the award from Prince Philip at Buckingham Palace. *May 11-13*, NATO ministerial meeting held in London, England. *May 12*, In a ruling on charges against non-reserve Indians of failing to pay compulsory premiums for Saskatchewan hospital and medical care, the terms of a Treaty made in 1876 between Queen Victoria and certain Saskatchewan Indian tribes requiring the Federal Government to provide free hospital and medical care for all Indians in the province, were upheld. *May 19*, Federal program outlined to assist persons moving from one community to another for employment; revolving loan fund of \$5,000,000 and an additional \$5,000,000 annually in grants to be provided. Arrival in Ottawa of Their Imperial Majesties the Shah of Iran and Empress Farah beginning an eight-day state visit to Canada. *May 20*, Holland became the first country to make a formal contract for participation in Expo 67. Admiral of the Fleet Earl Mountbatten of Burma visited Prime Minister Pearson in Ottawa as head of a British mission of inquiry into Commonwealth immigration problems. *May 21*, The flag of Ontario—the Red Ensign bearing the Ontario Coat of Arms—proclaimed. Hon. George A. Drew, former High Commissioner for Canada to Britain, installed as Chancellor of the University of Guelph at its first convocation. *May 24*, One of seven Scarves of Honour crocheted by Queen Victoria in 1900 for presentation to Boer War heroes, won 65 years ago by Pte. Richard Rowland Thompson of Ottawa, presented by his nephew, S. F. Thompson of Cork, Ireland, to Governor General Vanier in ceremony on Parliament Hill; it is on permanent display in the Canadian War Museum. Demonstrations by Quebec separatists in Montreal marked the Victoria Day holiday, resulting in about 25 arrests; three monuments in Quebec City defaced in other demonstrations. *May 27*, Plans announced for a \$10,000,000 provincial park along the north shore of the Ottawa river between Carillon and Hull—a joint federal-provincial centennial project. *May 28*, Four Canadians in first unescorted transatlantic flight of a helicopter from Stratford, Conn., U.S.A. to Prestwick, Scotland. *May 31*, Death of Hon. George Nowlan, M.P. for Digby-Annapolis-Kings since 1950, and former Minister of National Revenue and Minister of Finance.

June: *June 1*, Document on "Principles of Union" made public by the Anglican and United Churches of Canada; to be studied by committees of each denomination. The world's first icebreaking cable-repair ship built for the Canadian Coast Guard christened CCGS *John Cabot* at Montreal. *June 2*, Legislation providing for the retirement of Senators at age 75 received assent. *June 3-6*, U.S. astronauts

McDivitt and White in space flight; during the third circuit of the earth Major White left the spacecraft for 20 minutes. *June 8*, Hon. J. Wesley Stambaugh of Alberta announced his retirement from the Senate, the first retirement under legislation assented to June 2. *June 10*, Prime Minister Lal Bahadur Shastri of India arrived in Ottawa for a five-day visit. Bill Crothers of Canada defeated world champion Peter Snell of New Zealand in the half-mile race at Toronto Varsity Stadium; Snell's world record time stands. *June 14*, Presentation in London, Eng., of the Patron's (H.M. Queen Elizabeth) Medal of the Royal Geographical Society to Dr. Ernest Frederick Roots of Ottawa for his work in polar exploration and research. *June 15*, Canadian and U.S. lawyers joined British judges and legal leaders in London in homage to the 750-year-old Magna Carta. Official groundbreaking ceremony for Canadian Government pavilion at Expo 67 took place in Montreal. *June 16*, Dr. Wilder G. Penfield honoured by the Canadian Medical Association with its highest award, the Frederick Newton Gisborne Starr Award, known as the "Victoria Cross" of Canadian medicine. *June 17-25*, The 14th Conference of Commonwealth Prime Ministers held in London, Eng. *June 21*, Announcement of Federal Government pledge of \$4,000,000 to the UN to help alleviate its financial difficulties. *June 23*, Arnold Smith, Assistant Deputy Minister of External Affairs, unanimously chosen first Secretary-General of the newly formed Commonwealth Secretariat. Arrival of H.M. Queen Elizabeth, the Queen Mother, in Toronto for a five-day private visit. William E. Grant, former Yukon Indian agency superintendent, convicted on charges of making false returns to the federal Indian Affairs Branch; he was commended by the presiding judge for risking his career to carry out projects he considered necessary by appropriating relief funds at his disposal for the benefit of the Indians. *June 26*, Whistling Sea, a Calgary-bred three-year-old colt owned by Paul Olivier won the Queen's Plate. *June 28*, Formal inauguration of commercial telephone service over the U.S.-launched Early Bird satellite between Canada and Britain, by conversation between External Affairs Minister Martin and British Secretary for Commonwealth Relations Arthur Bottomley. Agreement reached by Federal, Quebec and Ontario Agriculture Ministers at federal-provincial meeting regarding special aid to farmers in the Ottawa Valley which suffered severe drought. *June 29*, Report of the Dorion Royal Commission inquiring into allegations of improper inducements and pressures on counsel acting for the extradition of Lucien Rivard tabled in the House of Commons. Death of Grant McConachie, President of CPA. *June 30*, Robert Harris' oil painting depicting the Quebec Conference of 1864 to be restored by artist Rex Woods of Toronto and presented to the nation by the Confederation Life Association before July 1, 1967. Controversy regarding statement in Dorion Report that Prime Minister Pearson was informed Sept. 2 by Justice Minister Favreau of the involvement of Guy Rouleau, M.P., Parliamentary Secretary to the Prime Minister, in the Lucien Rivard affair. Guy Rouleau resigned effective July 31; André Letendré, Executive Assistant to the Minister of Justice, discharged, and Hon. Guy Favreau resigned as Minister of Justice following tabling of the Report.

July: *July 1*, Canada Labour Code for all Federal Government employees came into effect. *July 1-2*, Separatist demonstrations in Montreal and Sherbrooke resulted in arrest of 55 persons. *July 5*, Wolfe Monument, destroyed presumably by separatists on the historic Plains of Abraham in 1963, being restored; completed monument will bear inscriptions in both English and French. *July 6-8*, Most of Montreal's 850 service stations closed as a result of strike by the Gasoline Retailers Fraternity of Quebec against the oil companies, demanding greater profit margins. *July 8*, The Heenev

Committee, after two years of study, recommended that collective bargaining, conciliation and arbitration for the Civil Service be placed in the hands of an independent Public Service Staff Relations Board; and that the Civil Service be reclassified into six major occupational groups and incentive pay provided; the principle of these proposals was approved by the Government. Agreement reached by the Federal and Quebec Governments that the province will provide all normal municipal services previously provided by the Federal Government to the Eskimo community of Great Whale River, thus setting a pattern to be followed for other Eskimo communities in Arctic Quebec. A CPA aircraft crashed en route from Vancouver to Prince George, killing all 52 persons on board; after investigation, cause declared unknown. *July 10*, Report of Saskatchewan Royal Commission on Taxation urged the province to assume education and health and welfare costs and recommended against continued use of property taxes for such financing. *July 12*, J. C. Gilmer of Vancouver named President of Canadian Pacific Airlines, succeeding the late Grant McConachie. A special report on Canada-United States relations, prepared by Arnold D. P. Heenev, former Canadian Ambassador to Washington, and Livingston Merchant, former U.S. Ambassador to Ottawa, at the request of Prime Minister Pearson and President Johnson, suggested that Canada avoid public disagreement with the U.S. on critical world issues where this country has no special interests or obligations, and recommended deeper consultation between the two governments. Death of Mrs. Irene Parby, age 97, at Red Deer, Alta., Minister without Portfolio in the Alberta Government in 1921; she was the first woman to hold cabinet minister rank in the Commonwealth and the last surviving member of the "Famous Five" who fought to gain the right for women to sit in the Canadian Senate. *July 14*, Governor General Vanier to continue in office for an indefinite period, following confirmation of his reappointment by H.M. Queen Elizabeth. Raymond Denis, former Executive Assistant to the Minister of Citizenship and Immigration, charged with attempts at bribery and obstruction of justice in the Lucien Rivard affair. Death of Adlai E. Stevenson, U.S. Ambassador to the United Nations, in London, Eng. The first pictures of the planet Mars transmitted to earth by the U.S. satellite *Martiner IV*. *July 15*, Earl Mountbatten of Burma retired after nearly 50 years in British military service. *July 16*, The Federal Government announced plans to place a \$215,000,000-order for the *Northrop CF-5*, a multi-purpose aircraft carrying conventional weapons only. Lucien Rivard recaptured near Montreal. *July 19-22*, Federal-Provincial Conference of Premiers in Ottawa, attended for the first time by representatives of the Yukon Territory and the Northwest Territories; national health insurance, economic growth and off-shore mineral rights were the primary topics of discussion. *July 21*, Announcement by the Federal, Ontario and Quebec Governments of subsidies totalling \$20,000,000 to drought-stricken farm areas in the two provinces. *July 22*, The Ontario Court of Appeal reversed an earlier decision which denied Canadian citizenship to Ernest and Cornelia Bergsma, formerly of the Netherlands, because they were atheists; citizenship granted Oct. 4. Sir Alec Douglas-Home, leader of the Conservative Party in the British House of Commons, resigned as party leader; succeeded by Edward Heath. *July 28*, Lucien Rivard extradited to the United States to face narcotics charges. *July 28-Aug. 7*, Strike of postal employees involving nearly 10,000 workers in more than 68 centres in Quebec. Ontario and British Columbia against pay increases they considered inadequate. (July 21-23, Decision to appoint an independent Commissioner made by Cabinet Committee set up to review situation; Judge J. C. Anderson of Belleville, Ont., appointed. *July 22*, Postal workers left jobs. *July 27-Aug. 3*, Agreement reached with strike

representatives; workers outside Metropolitan Montreal returned to work. Aug. 7, Montreal workers returned to work after additional concessions.) July 28, Death of Lionel Vincent Massey, elder son of former Governor General Vincent Massey. Announcement of election of Mme Thérèse Casgrain of Montreal to the 100-member presidium of the World Peace Congress, at recent meeting in Helsinki. July 30, Mr. Justice Samuel H. S. Hughes of the Supreme Court of Ontario appointed commissioner to investigate the collapse of Atlantic Acceptance Corp. Ltd. and its tangled financial transactions with other companies, which went into receivership in June with debts estimated at \$115,000,000. Arrival in Canada of a U.S.S.R. trade mission for a three-week tour.

August: Aug. 2, Beneficiaries of the \$100,000,000 estate of Mrs. Izaak Walton Killam, widow of the late Nova Scotia-born industrialist and financier, included the University of Alberta (\$6,000,000), Dalhousie University (\$10,000,000), the University of British Columbia (\$4,000,000), the Children's Hospital in Halifax (\$8,000,000), and the Montreal Neurological Institute. Aug. 3, Sixth Conference of Provincial Premiers opened in Winnipeg, with eight Premiers attending; agenda included standards in education and adoption practices, portability of private pensions and interprovincial co-ordination. Aug. 4, Ottawa City Council approved construction of a multi-purpose Civic Sports Centre to be completed by Jan. 1, 1967; project depends on contributions from other levels of government and on costs. Aug. 5, Report of Mr. Justice George Chalmers of the Quebec Superior Court into the cause of the crash of a DC-8 jet near Montreal on Nov. 29, 1963, gave the probable cause but said "the actual cause of the accident cannot be determined with certainty". Quebec provincial legislation passed creating the City of Laval by the amalgamation of the 14 municipalities of Ile Jésus. Aug. 9, Singapore seceded from the 23-month-old Federation of Malaysia to form an independent nation. Report of Commissioner Murray V. Jones on local government at Ottawa released by Ontario Department of Municipal Affairs; recommended sweeping changes in hydro, transportation, education and other established authorities, and the creation of a regional government to replace municipal governments in the region. Aug. 10, Grain handlers in Port of Montreal, on strike since June 16, returned to work. Aug. 11, sale of 5,000,000 tons of wheat and wheat flour to the U.S.S.R. announced, bringing total purchased by that country in the current crop year to about 222,000,000 bu. Aug. 12, Announcement of India's first industrial investment in the Western Hemisphere—a mill to convert what is now largely wasted timber into hardboard—to be established in Nova Scotia. Aug. 14, Race riots in Los Angeles, Cal., were responsible for 12 deaths, devastation of much of the city's Negro district, looting, etc. Report released by the Royal Commission on Government Administration, established July 1964. Aug. 16, Grain handlers in Port of Vancouver, on strike since June 2, returned to work. Aug. 16, A six-member U.S.S.R. delegation specializing in northern development and construction began 18-day tour of Canada—a sequel to a visit to the U.S.S.R. by Northern Affairs and National Resources Minister Laing. Aug. 18, Commemorative ceremonies marked the 25th anniversary of a meeting between U.S. President Roosevelt and Canadian Prime Minister Mackenzie King at Ogdensburg, N.Y., which resulted in the founding of the Canada-U.S. Permanent Joint Board on Defence. Aug. 19, Disclosure that investigations into fraudulent bankruptcies in Quebec revealed a loss of \$5,400,000 in taxes to the provincial government by bankruptcy rings, underworld racketeers and big business men. Aug. 21, The \$2,000,000 Swift Rapid Lock on the Severn River officially opened, eliminating bottleneck on the Trent Canal system by replacing a marine railway. Aug. 23, Death in

Vancouver of Hon. George Black, 92, sourdough and lawyer who represented the Yukon Territory in the House of Commons for 23 years and became Speaker of the House. Aug. 23-28, Conference on World Development held at Banff, Alta., co-sponsored by the University of Alberta and the Canadian Institute of International Affairs; the subject for discussion was "The Role of Canada as a Middle Power". Aug. 29, U.S. Gemini V space flight ended; astronauts Cooper and Conrad made 120 orbits of the earth in 7 days, 22 hours and 55 minutes.

September: Hon. Alan A. Macnaughton, former Speaker of the House of Commons, became one of 20 life members of the French National Assembly, an honour conferred on him at meetings in September of the newly formed Canada-France Parliamentary Association. Mr. and Mrs. K. C. Irving of Saint John, N.B., received the Eleanor Roosevelt Humanitarian Award for their friendship and aid to Israel, the first Canadians to be so honoured. U.S. Astronaut Scott Carpenter spent 29 days 205 feet under water in *Sealab II* off La Jolla, Cal. Sept. 1, Norman A. Robertson, Canadian negotiator in the Kennedy Round of trade and tariff negotiations in Geneva and long-time civil servant, appointed the first Director of the new graduate School of International Affairs at Carleton University, Ottawa. Canada's first travelling livestock exhibit, comprising 20 Canadian Holstein cattle, started a two-month tour of France. Sept. 2, Death in Fort William, Ont., of Rev. Dan McIvor, 94, federal M.P. from 1935 to 1957. Sept. 3, Announcement of Federal Government expenditure of \$1,000,000 in 1965-66 on cultural exchanges with French-speaking countries of Europe. Canada's contribution to a five-year program for the establishment of a Tanzanian military air wing announced; to include aircraft and parts and training of personnel. Opening of a Canadian Embassy in Dakar, Senegal, announced. Sept. 4, Death of Dr. Albert Schweitzer, physician, philosopher and musician, who won world acclaim for his humanitarianism and services in Africa. Sept. 8-18, The 54th Conference of the Inter-Parliamentary Union held in Ottawa; more than 800 delegates from 61 countries attended. Proclamation of the dissolution of 26th Parliament; federal election called for Nov. 8. Sept. 9, Official opening of Simon Fraser University in Vancouver. Ottawa-Hull area transportation study released, containing recommendations re construction of a system of freeways, arterial streets, downtown distributor road, etc.; estimated cost \$435,000,000. Fowler report on broadcasting released; existing regulations criticized, and better and more balanced programming with more Canadian content, and the creation of a Canadian Broadcasting Authority, recommended. Sept. 20, Death of Mrs. Madge Macbeth, author of 20 books, and the first woman President of the Canadian Authors Association, in Ottawa. Announcement that Canada and Britain will share the cost of a survey for the construction of a Zambia-Tanzania railway. Sept. 21, Georges Lemay, wanted in connection with a 1961 bank burglary in Montreal, escaped from a Miami, Florida, jail. Sept. 24, The Royal Canadian Navy's first 2,000-ton Oberon class submarine, *Ojibwa*, formally commissioned at Chatham, Eng., by Canadian High Commissioner Chevier. Appointment of Major General B. F. Macdonald to command the newly formed UN India-Pakistan Observation Mission announced. Sept. 28, Death in Montreal of Hon. Herbert J. Symington, former President of Trans-Canada Air Lines. Sept. 29, Death of Ross Hamilton who, as "Marjorie" was a member of the Dumbells, entertainers of World War I fame.

October: Oct. 4, Pope Paul VI, on first visit to the Western Hemisphere, addressed the United Nations General Assembly in New York in the cause of world peace and was acclaimed by 90,000

persons at Yankee Stadium. A case unique in Canadian legal history ended in the conviction and fine of Hilton of Canada Ltd., operator of the Queen Elizabeth Hotel in Montreal, for discriminating against a Negro job applicant. Discovery of five decomposed bodies near Quebec City linked with underworld activities including fraudulent bankruptcies and arson. Oct. 5, The first foreign industrial company signed by Expo 67; the Watchmakers of Switzerland will erect 14 clock towers. Oct. 6, Report of the Bladen Commission, appointed in 1964 by the Association of Universities and Colleges of Canada, released; recommendations included the raising of university grants, increased aid to students and appointment of a federal minister of higher education. Oct. 7, Report of Mr. Justice Kelly, appointed Aug. 13 as a one-man Royal Commission to investigate stock market activities of Windfall Oils and Mines Ltd., released; recommendations included changes in the conduct of business in the Toronto Stock Exchange and establishment of the Ontario Securities Commission as an independent agency, and findings included condemnation of the Director of the Commission and the promoters of Windfall; George and Viola MacMillan charged (Oct. 7) with fraud stemming from the rise and fall of Windfall stocks and John Hunter Campbell, former Director of the Ontario Securities Commission, charged (Oct. 12) with breach of trust arising out of the Windfall report. Resignation of Frank H. Hall, leader of Canada's non-operating railway unions for 20 years. Oct. 8, Announcement of Royal approval of Manitoba's provincial flag—a Red Ensign bearing the provincial coat-of-arms. Death in New York of Thomas Costain, novelist and historian born in Brantford, Ont., and former editor of the *Guelph Mercury* and director of *Maclean's Magazine*. Oct. 13, Announcement of the establishment of a Crown corporation to assist the Canadian private film industry in the production of feature films. Canada and Ethiopia agreed to establish diplomatic relations. Oct. 16, Official opening of the \$13,000,000 Macdonald-Cartier Bridge spanning the Ottawa River by Prime Minister Pearson, Premier Robarts of Ontario and Premier Lesage of Quebec. Oct. 16, Singapore admitted to membership in the Commonwealth, bringing membership to 22 countries. Oct. 18, Abraham Allen Okpik of Yellowknife, N.W.T., became the first Eskimo to be appointed to the Northwest Territories Council. Oct. 19, André Lamothe, Ovila Boulet, Jean-Jacques Gagnon and Fernand Quirion found criminally responsible in four arson-racket killings believed to have been staged by the underworld to stop investigations by the Quebec Department of Justice. Oct. 20, Two cornerstones, one in English and the other in French, laid by Premier Robarts of Ontario and Premier Lesage of Quebec for Champlain College, the first building on the site of Trent University, Peterborough, Ont. Oct. 21, The \$10,500,000 Concordia Bridge, linking Montreal Island with the man-made islands of the Expo 67 site, officially opened by Governor General Vanier. Oct. 27, Federal contribution to the UN High Commission for Refugees increased to \$350,000, subject to the approval of Parliament, making Canada the second largest contributor.

November: Nov. 1, Heavy speculation on the Vancouver Stock Exchange in stocks of companies with claims in the Pine Point area of the Northwest Territories. Nov. 2, The first contract for construction of the causeway linking Prince Edward Island with mainland New Brunswick awarded; causeway, bridge and tunnel to be completed in late 1970. Nov. 4, Death of Senator Norman Platt Lambert in Ottawa. Nov. 8, Twenty-seventh General Election; Prime Minister Pearson's Liberal government returned to office; party standing—131 Liberal, 97 Progressive Conservative, 21 New Democratic Party, 9 Ralliement chrétien, 5 Social Credit and 2 Independent. Nov. 9, International

power failure extending from the Atlantic Coast to Chicago and from Florida into southern Ontario lasted up to 12 hours; investigation traced the fault to failure of a relay device in Ontario Hydro's generating station at Queenston. Nov. 11, Hon. Walter L. Gordon resigned as Minister of Finance. Rhodesia declared unilaterally its independence from Britain; Prime Minister Wilson announced sanctions against Rhodesia; Prime Minister Pearson confirmed that Canada does not recognize the unilateral declaration of Prime Minister Ian Smith or the independent state of Rhodesia. Nov. 12, The S.S. *Yarmouth Castle*, a cruise ship under Panamanian registry en route from Miami to Nassau, burned and sank with a loss of 90 persons, including two Canadians. The UN Security Council approved unanimously a resolution condemning the declaration of independence by the racist minority government in Rhodesia, calling on all countries to withhold aid from and recognition of the Smith regime. Lucien Rivard sentenced to 20 years in prison and fined \$20,000 on two narcotics convictions in Laredo, Texas. Nov. 12-20, Royal Agricultural Winter Fair held in Toronto; Larry C. Hixt of Beiseker, Alta., won world championship wheat title and Bert Tupling of Honeywood, Ont., won Queen's Guineas, top prize for 4-H Club members, for his Hereford steer. Nov. 13, Manitoba Hydro's \$140,000,000 power generating station officially opened at Grand Rapids. Nov. 16, Dr. Albert W. Trueman received diploma of honor awarded by the Canadian Conference of the Arts; presented by Governor General Vanier. Nov. 17, Prime Minister Pearson received the Family of Man Award for 1965 from the Protestant Council of Churches in New York. The first general cultural agreement between France and Canada signed by French Ambassador to Canada and Canada's Secretary of State for External Affairs. Nov. 18, The Vanier Medal of the Canadian Institute of Public Administration presented to Robert B. Bryce, Deputy Minister of Finance, by Governor General Vanier. Nov. 22, Canada Council medals presented to Yousuf Karsh, photographer; Gustave Lanctot, historian; Alfred Pelland, painter; and Walter B. Herbert, Canada Foundation Director. Molson Prizes presented to Jean Gascon, actor-director; and Frank Scott, constitutional expert and poet. Nov. 23, Appointment announced of Mme Georges P. Vanier as Chancellor of the University of Ottawa. Nov. 25, Lt.-Col. Terrance D. Lafferty of Kingston, C.O. of the 1st Battalion, the Royal Canadian Regiment, presented with the Ring of Honour by the City of Soest, Germany, for his service in creating good relations between the men of his Battalion and the people of Soest. Death of Gwethalyn Graham of Montreal, author of two Governor General's award-winning novels. Nov. 26, France launched its first satellite from a station in Algiers. Death of Senator Thomas Harold Wood of Regina. Nov. 27, The Grey Cup, symbol of Canadian professional football supremacy, won by Hamilton Tiger Cats over Winnipeg Blue Bombers by a score of 22-16. Nov. 28, Prime Minister Pearson and Mrs. Pearson arrived in the Caribbean for a vacation combined with official visits to Jamaica and Trinidad and Tobago. Nov. 29, Fifteen persons arrested in Quebec Province in connection with a multi-million dollar auto theft ring.

December: Dec. 5, The Bank of Canada announced an immediate increase in the bank rate to 13½ p.c. from 12½ p.c. Dec. 9, Resignation of Anastas Mikoyan, President of the U.S.S.R.; succeeded by Nikolai Podgorny. Dec. 15, First rendezvous of two spacecraft in flight accomplished by U.S. astronauts Schirra and Stafford in *Gemini 6* and Borman and Lovell in *Gemini 7* on the 11th day of the latter's 14 days in space. Dec. 15-18, Canada agreed to act as diplomatic intermediary between Britain and the United Arab Republic in Cairo and

as a protecting power for Tanzania in London and for Britain in Dar es Salaam; the UAR and Tanzania are among seven African states, two of them Commonwealth members, which broke off relations with Britain in protest against British failure to oust the white-minority regime in Rhodesia. *Dec. 16*, Ghana broke off diplomatic relations with Britain over the Rhodesian crisis. Secretary of State Maurice Lamontagne and Postmaster General René Tremblay resigned from the Federal Cabinet. *Dec. 17*, Rhodesian currency frozen by Swiss banks. Prime Minister Pearson announced several changes in designation of government departments and extensive rearrangement of duties in connection therewith. *Dec. 19*, Prime Minister Wilson of Britain visited Ottawa for talks with Prime Minister Pearson. General Charles de Gaulle won a second seven-year term as President of France. *Dec. 20*, Announcement of Canadian participation in airlift to supply Zambia with the necessities cut off by Rhodesian action, and of the decision to place an embargo on

the export of oil and oil products from Canada to Rhodesia. A Canadian member of a four-man survey party captured by Viet Cong guerrillas near Saigon, Otto Scholton of Burnaby, B.C., killed by his captors. Irish Hospitals Sweepstakes tickets valued at \$17,000,000 seized by police in the Montreal area. *Dec. 22*, Report of the Organizing Committee for the Company of Young Canadians released; recommendations include the setting up of the Company as a Crown corporation, and the choosing of volunteers for their ability to serve. *Dec. 29*, Canada to provide \$15,000,000 worth of food to famine-stricken India in addition to the \$10,000,000 worth of wheat already shipped under the 1965-66 food aid program. *Dec. 30*, Mme Georges P. Vanier, wife of the Governor General and a moving force behind the Vanier Institute of the Family, chosen Canada's woman of the year for 1965 in the annual Canadian Press year-end poll. Miss Petra Burka of Toronto, 19-year-old figure-skating star, voted Canada's top female athlete for the second consecutive year.

APPENDIX

Certain information given in Chapter II on Constitution and Government (closed off Apr. 30, 1965) is brought up to the date of going to press (Dec. 31, 1965-Jan. 31, 1966) in this Appendix.

Page 76, Table 4

Members of the Nineteenth Ministry, as announced Dec. 17, 1965 following the General Election of Nov. 8, 1965, were as follows, according to precedence:—

<i>Office</i>	<i>Occupant</i>
Prime Minister.....	Rt. Hon. LESTER BOWLES PEARSON
Secretary of State for External Affairs.....	Hon. PAUL JOSEPH JAMES MARTIN
Minister of Trade and Commerce.....	Hon. ROBERT H. WINTERS
Minister of Transport.....	Hon. JOHN WHITNEY PICKERSGILL
Minister of National Defence.....	Hon. PAUL THEODORE HELLYER
Minister of Finance and Receiver General.....	Hon. MITCHELL SHARP
Minister of Public Works.....	Hon. GEORGE JAMES McILRAITH
Minister of Northern Affairs and National Resources (later to be Indian and Northern Affairs).....	Hon. ARTHUR LAING
Minister of Justice and Attorney General.....	Hon. LUCIEN CARDIN
Minister of Health and Welfare.....	Hon. ALLAN JOSEPH MACEachEN
Minister of Fisheries.....	Hon. HÉDARD ROBICHAUD
Minister of Veterans Affairs.....	Hon. ROGER TEILLET
Secretary of State of Canada.....	Hon. JUDY V. LaMARSH
Minister of Industry and Minister of Defence Pro- duction.....	Hon. CHARLES MILLS DRURY
President of the Queen's Privy Council for Canada..	Hon. GUY FAVREAU
Minister of Labour.....	Hon. JOHN ROBERT NICHOLSON
Minister without Portfolio and Leader of the Senate..	Hon. JOHN JOSEPH CONNOLLY
Minister of Forestry (later to be Rural Development and Forestry).....	Hon. MAURICE SAUVÉ
Minister of National Revenue (later to be also President of the Treasury Board).....	Hon. EDGAR JOHN BENSON
Associate Minister of National Defence.....	Hon. LÉO ALPHONSE JOSEPH CADIEUX
Solicitor General.....	Hon. LAWRENCE T. PENNELL
Minister of Mines and Technical Surveys (later to be Resources and Energy).....	Hon. JEAN-LUC PÉPIN
Minister of Citizenship and Immigration (later to be Manpower).....	Hon. JEAN MARCHAND
Minister of Agriculture.....	Hon. JOHN JAMES GREENE
Postmaster General.....	Hon. JOSEPH-JULIEN-JEAN-PIERRE CÔTÉ
Minister without Portfolio.....	Hon. JOHN NAPIER TURNER

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Parliamentary Secretaries appointed Jan. 9, 1966 were as follows:—

<i>Secretary</i>	<i>Minister</i>
JOHN MATHESON.....	} Prime Minister
PIERRE ELLIOT TRUDBAU.....	
BRUCE S. BEER.....	
JOHN C. MUNRO.....	
DONALD S. MACDONALD.....	} Agriculture Citizenship and Immigration (later to be Manpower) External Affairs Finance and Receiver General Fisheries Labour Mines and Technical Surveys (later to be Resources and Energy) National Health and Welfare National Revenue Northern Affairs and National Resources (later to be Indian and Northern Affairs) Public Works Secretary of State Trade and Commerce Transport
J. J. JEAN CHRÉTEN.....	
CHARLES R. M. GRANGER.....	
BRYCE S. MACKASEY.....	
JACK DAVIS.....	
MARGARET RIDEOUT.....	
JAMES E. WALKER.....	
STANLEY HADASZ.....	
JOHN B. STEWART.....	
ALBERT BÉCHARD.....	
JEAN-CHARLES CANTIN.....	
JAMES A. BYRNE.....	

When announcing the above appointments, the Prime Minister gave notice of intention to seek the authority of Parliament to appoint six additional Parliamentary Secretaries.

Pages 77 and 78, Table 5

Privy Council appointments from Apr. 30 to Dec. 31, 1965 are given in the Register of Official Appointments, p. 1143.

Page 78, Table 6

Third Session of the 26th Parliament adjourned June 30, 1965.

26th Parliament dissolved Sept. 8, 1965.

First Session of the 27th Parliament opened Jan. 18, 1966.

Pages 80-81, Table 8

Senate appointments, Apr. 30, 1965 to Jan. 31, 1966:—

HON. WILLIAM MOORE BENIDICKSON.....	Ontario
HON. ALEXANDER HAMILTON McDONALD.....	Saskatchewan

Senate separations, Apr. 30, 1965 to Jan. 31, 1966:—

Retired—

HON. THOMAS VINCENT GRANT.....	Prince Edward Island
HON. JOSEPH WILLIE COMEAU.....	Nova Scotia
HON. WISHART McLEA ROBERTSON.....	Nova Scotia
HON. LEONARD DAVID SWEZEY TREMBLAY.....	Quebec
HON. JOHN ALEXANDER BUCHANAN.....	Alberta
HON. J. WESLEY STAMBAUGH.....	Alberta
HON. NANCY HODGES.....	British Columbia

Deceased—

HON. NORMAN P. LAMBERT.....	Ontario
HON. THOMAS H. WOOD.....	Saskatchewan

At Jan. 31, 1966, there were 14 vacancies in the Senate.

Page 83, Table 10

The following are the Members of the House of Commons as elected at the Twenty-seventh General Election, held Nov. 8, 1965:—

<i>Province and Electoral District</i>	<i>Name of Member</i>	<i>Party Affiliation¹</i>
Newfoundland—		
(7 members)		
Bonavista-Twillingate.....	Hon. J. W. PICKERSGILL.....	Lib.
Burin-Burgeo.....	C. W. CARTER.....	Lib.
Grand Falls-White Bay-Labrador.....	C. R. GRANGER.....	Lib.
Humber-St. George's.....	H. M. BATTEN.....	Lib.
St. John's East.....	J. P. O'KEEFE.....	Lib.
St. John's West.....	R. CASHIN.....	Lib.
Trinity-Conception.....	J. R. TUCKER.....	Lib.
Prince Edward Island—		
(4 members)		
Kings.....	M. McQUAID.....	P.C.
Prince.....	D. MACDONALD.....	P.C.
Queens.....	(Hon. J. A. MacLEAN.....	P.C.
	{ H. MACQUARRIE.....	P.C.
Nova Scotia—		
(12 members)		
Antigonish-Guysborough.....	J. B. STEWART.....	Lib.
Cape Breton North-Victoria.....	R. MUIR.....	P.C.
Cape Breton South.....	D. MACINNIS.....	P.C.
Colchester-Hants.....	C. F. KENNEDY.....	P.C.
Cumberland.....	R. C. COATES.....	P.C.
Digby-Annapolis-Kings.....	J. P. NOWLAN.....	P.C.
Halifax.....	(J. M. FORRESTALL.....	P.C.
	{ R. McCLEAVE.....	P.C.

¹For footnote, see end of list, p. 1167.

<i>Province and Electoral District</i>	<i>Name of Member</i>	<i>Party Affiliation¹</i>
Nova Scotia—concluded		
Inverness-Richmond.....	Hon. A. J. MacEACHEN.....	Lib.
Pictou.....	H. R. MacEwan.....	P.C.
Queens-Lunenburg.....	L. R. CROUSE.....	P.C.
Shelburne-Yarmouth-Clare.....	J. O. BOWER.....	P.C.
New Brunswick—		
(10 members)		
Charlotte.....	A. M. A. McLEAN.....	Lib.
Gloucester.....	Hon. H.-J. ROBICHAUD.....	Lib.
Kent.....	G. CROSSMAN.....	Lib.
Northumberland-Miramichi.....	G. R. McWILLIAM.....	Lib.
Restigouche-Madawaska.....	J.-E. DUBÉ.....	Lib.
Royal.....	R. G. L. FAIRWEATHER.....	P.C.
Saint John-Albert.....	T. M. BELL.....	P.C.
Victoria-Carleton.....	Hon. H. J. FLEMING.....	P.C.
Westmorland.....	MARGARET RIDEOUT.....	Lib.
York-Sunbury.....	J. C. MACRAE.....	P.C.
Quebec—		
(75 members)		
Argenteuil-Deux-Montagnes.....	R.-E. RÉGIMBAL.....	P.C.
Beauce.....	J.-P. RACINE.....	Lib.
Beauharnois-Salaberry.....	G. LANIEL.....	Lib.
Bellechasse.....	H. LAVERDIÈRE.....	Lib.
Berthier-Maskinongé-Delanaudière.....	A. YANAKIS.....	Lib.
Bonaventure.....	A. BÉCHARD.....	Lib.
Brome-Missisquoi.....	H. GRAFFEY.....	P.C.
Chambly-Rouville.....	B. PILON.....	Lib.
Champlain.....	J.-P. MATTE.....	Lib.
Chapleau.....	G. LAPRISE.....	R.cr.
Charlevoix.....	Hon. M. ASSELIN.....	P.C.
Châteauguay-Huntingdon-Laprairie.....	I. WATSON.....	Lib.
Chicoutimi.....	P. LANGLOIS.....	Lib.
Compton-Frontenac.....	H. LATULIPPE.....	R.cr.
Dorchester.....	G. CÔTÉ.....	Lib.
Drummond-Arthabaska.....	Hon. J.-L. PÉPIN.....	Lib.
Gaspé.....	J. R. KEAYS.....	P.C.
Gatineau.....	G. ISABELLE.....	Lib.
Hull.....	A. CARON.....	Lib.
Îles-de-la-Madeleine.....	Hon. M. SAUVÉ.....	Lib.
Joliette-L'Assomption-Montcalm.....	J. R. COMTOIS.....	Lib.
Kamouraska.....	C.-E. DIONNE.....	R.cr.
Labelle.....	G. CLERMONT.....	Lib.
Lac-Saint-Jean.....	A. SIMARD.....	R.cr.
Lapointe.....	G. GRÉGOIRE.....	R.cr.
Lévis.....	R. GUAY.....	Lib.
Longueuil.....	Hon. J.-P. CÔTÉ.....	Lib.
Lotbinière.....	A. CHOQUETTE.....	Lib.
Matapédia-Matane.....	Hon. R. TREMBLAY.....	Lib.
Mégantic.....	R. LANGLOIS.....	R.cr.
Montmagny-L'Islet.....	J. BERGER.....	Lib.
Nicolet-Yamaska.....	C. VINCENT.....	P.C.
Pontiac-Témiscamingue.....	T. LEFEBVRE.....	Lib.
Portneuf.....	R. GODIN.....	R.cr.
Quebec East.....	G. DUQUET.....	Lib.
Quebec South.....	J.-C. CANTIN.....	Lib.
Quebec West.....	Hon. J. MARCHAND.....	Lib.
Quebec-Montmorency.....	O. LAFLAMME.....	Lib.
Richelieu-Verchères.....	Hon. L. CARDIN.....	Lib.
Richmond-Wolfe.....	P.-T. ASSELIN.....	Lib.
Rimouski.....	G. LEBLANC.....	Lib.
Rivière-du-Loup-Témiscouata.....	R. GENDRON.....	Lib.
Roberval.....	C. A. GAUTHIER.....	R.cr.
Saint-Hyacinthe-Bagot.....	Hon. T. RICARD.....	P.C.
Saint-Jean-Iberville-Napierville.....	P. BEAULIEU.....	P.C.
Saint-Maurice-Laféche.....	J. CHÉRIEN.....	Lib.
Saguenay.....	G. BLOUIN.....	Lib.
Shefford.....	L.-P. NEVEU.....	Lib.
Sherbrooke.....	M. ALLARD.....	Ind. P.C.
Stanstead.....	Y. FOREST.....	Lib.
Terrebonne.....	Hon. L. CADIEUX.....	Lib.
Trois-Rivières.....	J.-A. MONGRAIN.....	Ind.
Vaudreuil-Soulanges.....	R. EMARD.....	Lib.
Villeneuve.....	R. CAUETTE (Party leader).....	R.cr.

For footnote, see end of list, p. 1167.

<i>Province and Electoral District</i>	<i>Name of Member</i>	<i>Party Affili- ation¹</i>
Quebec—concluded		
<i>Montreal and Jesus Islands—</i>		
Cartier.....	M. L. KLEIN.....	Lib.
Dollard.....	J. P. GOYER.....	Lib.
Hochelaga.....	G. PELLETIER.....	Lib.
Jacques-Cartier-Lasalle.....	R. ROCK.....	Lib.
Lafontaine.....	G.-C. LACHANCE.....	Lib.
Laurier.....	F. E. LEBLANC.....	Lib.
Laval.....	J.-L. ROCHON.....	Lib.
Maisonneuve-Rosemont.....	A. THOMAS.....	Lib.
Mercier.....	P. BOULANGER.....	Lib.
Mont-Royal.....	P.-E. TRUDEAU.....	Lib.
Notre-Dame-de-Grâce.....	W. ALLMAND.....	Lib.
Outremont-Saint-Jean.....	Hon. M. LAMONTAGNE.....	Lib.
Papineau.....	Hon. G. FAVREAU.....	Lib.
St. Ann.....	G. LOISELLE.....	Lib.
Saint-Antoine-Westmount.....	Hon. C. M. DRURY.....	Lib.
Saint-Denis.....	M. PRUD'HOMME.....	Lib.
Saint-Henri.....	H. P. LESSARD.....	Lib.
Saint-Jacques.....	M. RINFRET.....	Lib.
St. Lawrence-St. George.....	Hon. J. N. TURNER.....	Lib.
Sainte-Marie.....	G. VALADE.....	P.C.
Verdun.....	B. S. MACKASEY.....	Lib.
Ontario—		
(85 members)		
Algoma East.....	Rt. Hon. L. B. PEARSON (Party leader).....	Lib.
Algoma West.....	G. E. NIXON.....	Lib.
Brantford.....	J. E. BROWN.....	Lib.
Brant-Haldimand.....	Hon. L. T. PENNELL.....	Lib.
Bruce.....	J. LONEY.....	P.C.
Carleton.....	Hon. R. A. BELL.....	P.C.
Cochrane.....	J.-A. HABEL.....	Lib.
Dufferin-Simcoe.....	J. E. MADILL.....	P.C.
Durham.....	R. C. HONEY.....	Lib.
Elgin.....	H. E. STAFFORD.....	Lib.
Essex East.....	Hon. P. MARTIN.....	Lib.
Essex South.....	E. F. WHELAN.....	Lib.
Essex West.....	H. E. GRAY.....	Lib.
Fort William.....	H. BADANAL.....	Lib.
Glengarry-Prescott.....	V. ETHIER.....	Lib.
Grenville-Dundas.....	JEAN WADDS.....	P.C.
Grey-Bruce.....	E. A. WINKLER.....	P.C.
Grey North.....	P. V. NOBLE.....	P.C.
Halton.....	H. C. HARLEY.....	Lib.
Hamilton East.....	J. C. MUNRO.....	Lib.
Hamilton South.....	W. D. HOWE.....	N.D.P.
Hamilton West.....	J. MACALUSO.....	Lib.
Hastings-Frontenac.....	R. A. WEBB.....	P.C.
Hastings South.....	L. GRILLS.....	P.C.
Huron.....	R. E. MCKINLEY.....	P.C.
Kenora-Rainy River.....	J. M. REID.....	Lib.
Kent.....	H. W. DANFORTH.....	P.C.
Kingston.....	Hon. E. J. BENSON.....	Lib.
Lambton-Kent.....	Mac T. McCUTCHEON.....	P.C.
Lambton West.....	W. F. FOY.....	Lib.
Lanark.....	D. CODE.....	P.C.
Leeds.....	J. R. MATHESON.....	Lib.
Lincoln.....	J. McNULTY.....	Lib.
London.....	J. A. IRVINE.....	P.C.
Middlesex East.....	J. G. LIND.....	Lib.
Middlesex West.....	W. H. A. THOMAS.....	P.C.
Niagara Falls.....	Hon. JUDY V. LAMARSH.....	Lib.
Nickel Belt.....	N. FAWCETT.....	N.D.P.
Nipissing.....	C. LEGAULT.....	Lib.
Norfolk.....	J. ROXBURGH.....	Lib.
Northumberland.....	Hon. G. HEES.....	P.C.
Ontario.....	Hon. M. STARR.....	P.C.
Ottawa East.....	J.-T. RICHARD.....	Lib.
Ottawa West.....	Hon. G. J. McILRAITH.....	Lib.
Oxford.....	W. B. NESBITT.....	P.C.
Parry Sound-Muskoka.....	G. H. AKEN.....	P.C.
Peel.....	B. S. BEER.....	Lib.
Perth.....	Hon. J. W. MONTEITH.....	P.C.
Peterborough.....	H. FAULKNER.....	Lib.
Port Arthur.....	R. K. ANDRAS.....	Lib.

For footnote, see end of list, p. 1167.

<i>Province and Electoral District</i>	<i>Name of Member</i>	<i>Party Affili- ation¹</i>
Ontario—concluded		
Prince Edward—Lennox.....	A. D. ALKENBRACK.....	P.C.
Renfrew North.....	L. HOPKINS.....	Lib.
Renfrew South.....	Hon. J. J. GREENE.....	Lib.
Russell.....	P. TARDY.....	Lib.
Simcoe East.....	P. B. RYNARD.....	P.C.
Simcoe North.....	H. E. SMITH.....	P.C.
Stormont.....	Hon. L. LAMOUREUX.....	Lib.
Sudbury.....	D. R. MITCHELL.....	Lib.
Timiskaming.....	A. PETERS.....	N.D.P.
Timmins.....	M. W. MARTIN.....	N.D.P.
Victoria.....	W. C. SCOTT.....	P.C.
Waterloo North.....	K. HYMMEN.....	Lib.
Waterloo South.....	M. SALTSMAN.....	N.D.P.
Welland.....	D. R. TOLMIE.....	Lib.
Wellington—Huron.....	W. M. HOWE.....	P.C.
Wellington South.....	A. D. HALE.....	P.C.
Wentworth.....	J. B. MORISON.....	Lib.
York Centre.....	J. E. WALKER.....	Lib.
York East.....	S. OTTO.....	Lib.
York—Humber.....	R. COWAN.....	Lib.
York North.....	J. ADDISON.....	Lib.
York—Scarborough.....	R. STANBURY.....	Lib.
York South.....	D. LEWIS.....	N.D.P.
York West.....	Hon. R. WINTERS.....	Lib.
City of Toronto—		
Broadview.....	J. GILBERT.....	N.D.P.
Danforth.....	R. SCOTT.....	N.D.P.
Davenport.....	Hon. W. L. GORDON.....	Lib.
Eglinton.....	Hon. M. SHARP.....	Lib.
Greenwood.....	A. BREWIN.....	N.D.P.
High Park.....	A. J. P. CAMERON.....	Lib.
Parkdale.....	S. HADASZ.....	Lib.
Rosedale.....	D. S. MACDONALD.....	Lib.
St. Paul's.....	I. G. WAHN.....	Lib.
Spadina.....	S. P. RYAN.....	Lib.
Trinity.....	Hon. P. HELLYER.....	Lib.
Manitoba—		
(14 members)		
Brandon—Souris.....	Hon. W. G. DINSDALE.....	P.C.
Churchill.....	R. SIMPSON.....	P.C.
Dauphin.....	R. E. FORBES.....	P.C.
Lisgar.....	G. MUIR.....	P.C.
Marquette.....	N. MANDZIUKE.....	P.C.
Portage—Neepawa.....	S. J. ENNS.....	P.C.
Provencher.....	W. H. JORGENSEN.....	P.C.
St. Boniface.....	Hon. R. TEILLET.....	Lib.
Selkirk.....	E. STEFANSON.....	P.C.
Springfield.....	E. R. SCHREYER.....	N.D.P.
Winnipeg North.....	D. ORLIKOW.....	N.D.P.
Winnipeg North Centre.....	S. KNOWLES.....	N.D.P.
Winnipeg South.....	L. R. SHERMAN.....	P.C.
Winnipeg South Centre.....	Hon. G. CHURCHILL.....	P.C.
Saskatchewan—		
(17 members)		
Assiniboia.....	L. WATSON.....	P.C.
Humboldt—Melfort—Tisdale.....	R. RAPP.....	P.C.
Kindersley.....	R. CANTELON.....	P.C.
Mackenzie.....	S. J. KORCHINSKI.....	P.C.
Meadow Lake.....	A. C. CADIEU.....	P.C.
Melville.....	J. N. ORMISTON.....	P.C.
Moose Jaw—Lake Centre.....	J. E. PASCOE.....	P.C.
Moose Mountain.....	R. R. SOUTHAM.....	P.C.
Prince Albert.....	Rt. Hon. J. G. DREPENBAKER (Party leader).....	P.C.
Qu'Appelle.....	Hon. A. HAMILTON.....	P.C.
Regina City.....	K. H. MORE.....	P.C.
Rosetown—Biggar.....	R. D. McLELLAND.....	P.C.
Rosthern.....	E. NASSERDEN.....	P.C.
Saskatoon.....	L. M. BRAND.....	P.C.
Swift Current—Maple Creek.....	J. McINTOSH.....	P.C.
The Battlefords.....	A. HORNER.....	P.C.
Yorkton.....	G. D. CLANCY.....	P.C.

For footnote, see end of list.

<i>Province and Electoral District</i>	<i>Name of Member</i>	<i>Party Affiliation¹</i>
Alberta—		
(17 members)		
Acadia.....	J. H. HORNER.....	P.C.
Athabaska.....	F. J. BIGG.....	P.C.
Battle River—Camrose.....	C. S. SMALLWOOD.....	P.C.
Bow River.....	E. M. WOOLLIAMS.....	P.C.
Calgary North.....	Hon. D. S. HARKNESS.....	P.C.
Calgary South.....	H. R. BALLARD.....	P.C.
Edmonton East.....	W. SKOREYKO.....	P.C.
Edmonton—Strathcona.....	T. NUGENT.....	P.C.
Edmonton West.....	Hon. M. LAMBERT.....	P.C.
Jasper—Edson.....	H. M. HORNER.....	P.C.
Lethbridge.....	D. R. GUNDLOCK.....	P.C.
Macleod.....	L. E. KINDT.....	P.C.
Medicine Hat.....	H. A. OLSON.....	S.C.
Peace River.....	G. W. BALDWIN.....	P.C.
Red Deer.....	R. N. THOMPSON (Party leader).....	S.C.
Vegreville.....	F. J. W. FANE.....	P.C.
Wetaskiwin.....	H. A. MOORE.....	P.C.
British Columbia—		
(22 members)		
Burnaby—Coquitlam.....	T. C. DOUGLAS (Party leader).....	N.D.P.
Burnaby—Richmond.....	R. W. PRITTE.....	N.D.P.
Cariboo.....	B. LEBOE.....	S.C.
Coast—Capilano.....	J. DAVIS.....	Lib.
Comox—Alberni.....	T. S. BARNETT.....	N.D.P.
Esqumalt—Saanich.....	G. L. CHATTERTON.....	P.C.
Fraser Valley.....	A. B. PATTERSON.....	S.C.
Kamloops.....	Hon. E. D. FULTON.....	P.C.
Kootenay East.....	J. A. BYRNE.....	Lib.
Kootenay West.....	H. W. HERRIDGE.....	N.D.P.
Nanaimo—Cowichan—The Islands.....	C. CAMERON.....	N.D.P.
New Westminster.....	B. MATHER.....	N.D.P.
Okanagan Boundary.....	D. V. PUGH.....	P.C.
Okanagan—Revelstoke.....	H. JOHNSTON.....	S.C.
Skeena.....	F. HOWARD.....	N.D.P.
Vancouver—Burrard.....	R. BASFORD.....	Lib.
Vancouver Centre.....	Hon. J. R. NICHOLSON.....	Lib.
Vancouver East.....	H. E. WINCH.....	N.D.P.
Vancouver—Kingsway.....	GRACE MACINNIS.....	N.D.P.
Vancouver—Quadra.....	G. DEACHMAN.....	Lib.
Vancouver South.....	Hon. A. LAING.....	Lib.
Victoria.....	D. W. GROOS.....	Lib.
Yukon Territory—		
(1 member)		
Yukon.....	E. NIELSEN.....	P.C.

Northwest Territories—

(1 member)

Northwest Territories.....	R. J. ORANGE.....	Lib.
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¹ Lib.=Liberal; P.C.=Progressive Conservative; N.D.P.=New Democratic Party; S.C.=Social Cr.; R.cr.=Ralliement créditiste; Ind. P.C.=Independent Progressive Conservative; Ind.=Independent.

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THE GOVERNMENT OF CANADA

DEPARTMENTS AND AGENCIES

